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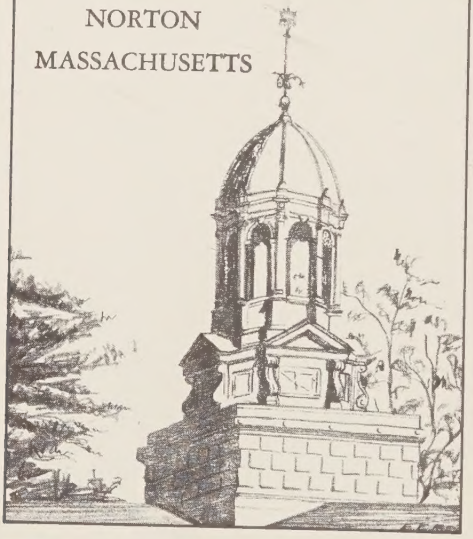

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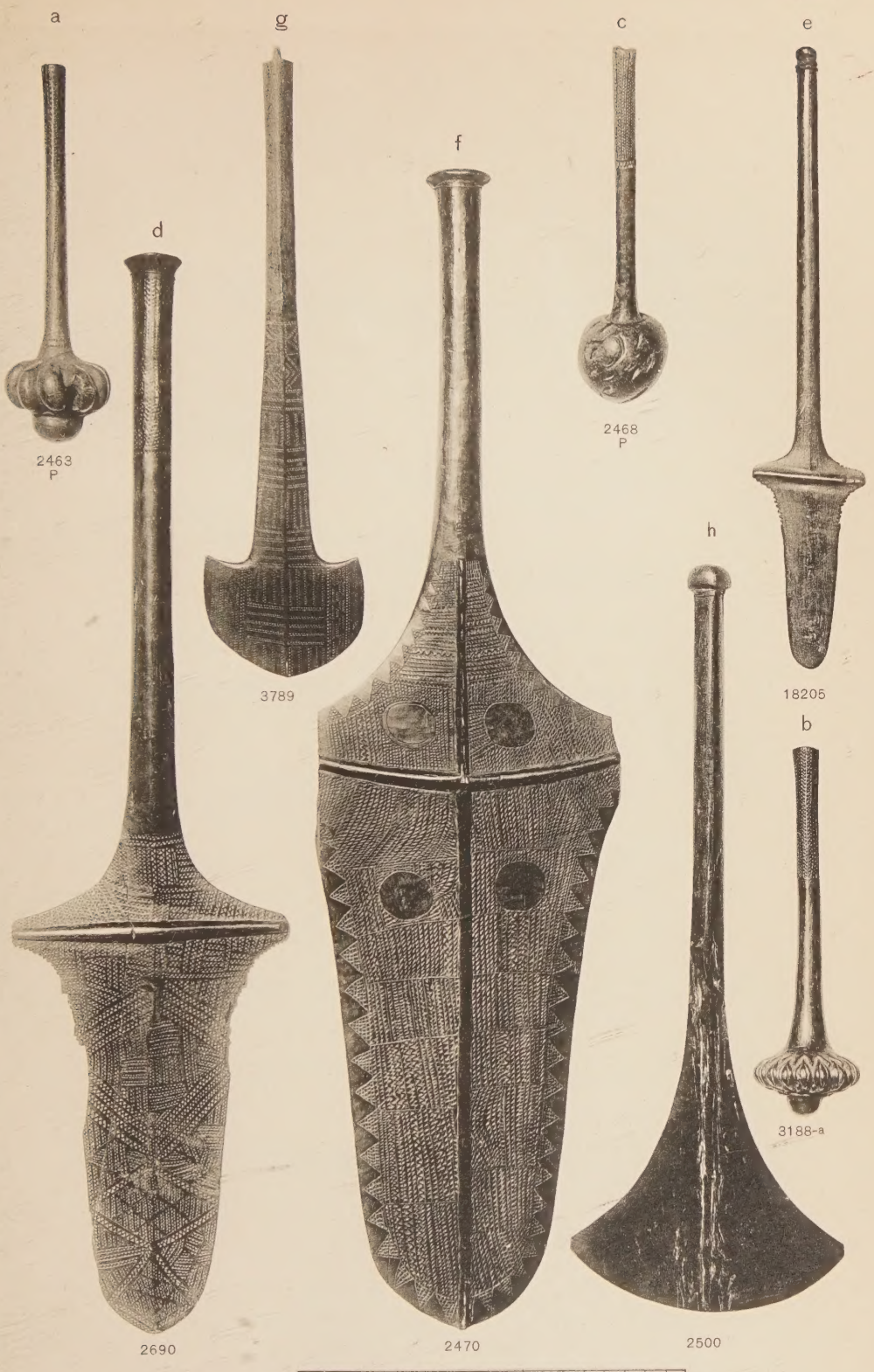
CLUB TYPES

OF

NUCLEAR POLYNESIA



CLUBS OF NUCLEAR POLYNESIA: SERIES A.

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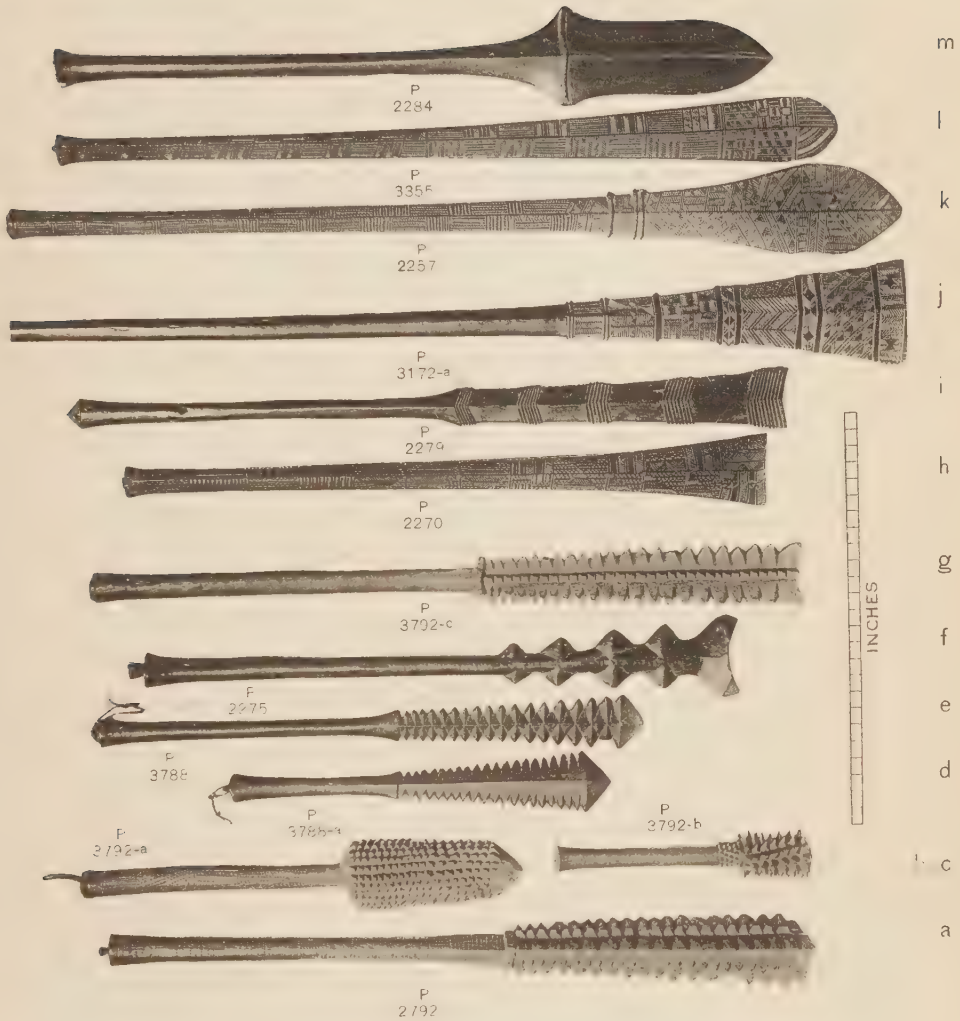

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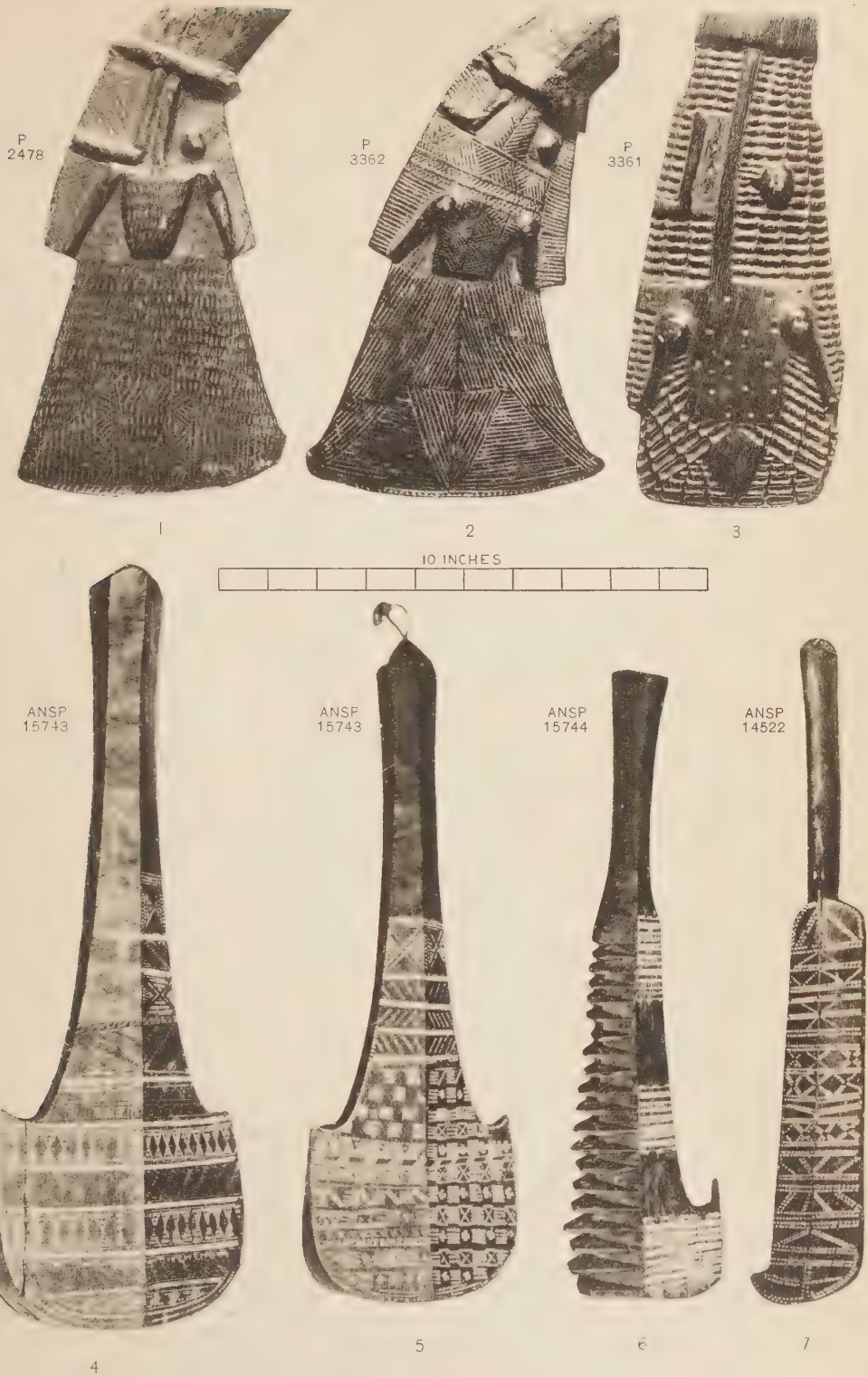

CLUBS OF NUCLEAR POLYNESIA: SERIES D.

CLUB TYPES
OF
NUCLEAR POLYNESIA

BY
WILLIAM CHURCHILL

THE CARNEGIE INSTITUTION OF WASHINGTON
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CHAPTER I.

THE ARTS OF THE CLUB.

The South Sea ethnica in the Museum of the University of Pennsylvania are so numerous in the sum of the pieces as to establish this as one of the great collections of the world. Of even greater moment is the fact, immediately and distinctly recognized in the recent recension of the material, that such careful judgment has been exercised in the acquisition of most of these specimens as to establish the collection in the foremost position for the critical study of a great many types of objects. Very few indeed are the culture sources which are not represented; still fewer are the types of objects pertaining to the by no means simple culture of the islands of the Pacific which are not abundantly exemplified. In a large number of such types the suite of specimens is sufficiently rich to afford a most remarkable opportunity for the study of the evolution of the object from a primitive form to one more highly conventionalized, and in the ornamentation to enable the student to discover the reason of much that has passed from the serving of an end of strict utility to a system of ornament which without this richness of material would remain quite incomprehensible. In the latter particular it is to note that almost all this ornament is mere convention to the people who employ it and that their explanation is wholly fanciful.

In the course of the recension of the collection and the ordering of the various types by theme one group peculiarly came to the front as offering practically a complete suite sufficient for the evolutionary study of dissonant cultures at a point of contamination through intercourse of at least two distinct ethnic groups. The present paper is addressed to the statement of the several problems which arise in the examination of the wooden clubs of Nuclear Polynesia. It becomes necessary, therefore, to present as basic a *catalogue raisonné* of all the ethnica of this particular subdivision in the museum. Upon this record, regarded as the base of all study, depend certain conclusions which are essentially matters of opinion and interpretation, and as such open to discussion.

Nuclear Polynesia is the designation of a subdivision of the Polynesian Pacific which upon linguistic and traditional grounds I found it necessary to erect. In "The Polynesian Wanderings" at page 179 I announced this subdivision as follows:

1. Nuclear Polynesia (Samoa the nucleus, and Niuē, Tonga, Viti describing the perimeter) was under settlement by Polynesians from a date so remote that they had lost all direct memory of an anterior movement thither. They held themselves autochthons, and in the greater groups had creation myths in which land first emerged from the tireless sea, their own the first of lands

and they upon it the first of men. These we style the Proto-Samoans. The indirect tradition of a former home told no rearward tale to them. It is only by inference and through digestion of many such traditions that we are able to read into the consistent belief in the westward home of the spirit a dim record of an earlier abiding place. The dead go home, home to a home that the living have long ceased to remember; blessed are the dead in their direction sense.

2. Upon this Proto-Samoan settlement came a later wave of migration of the same race. This second migration held its footing upon Nuclear Polynesia through a period whose duration we are quite without the data to estimate. In general the later migrants behaved so harshly to the original inhabitants, albeit of their own race and almost word for word of the same speech, as to provoke reprisals. For these later migrants we have adopted the name by which they are known in Samoan history, the Tongafiti; it being understood that the present names of the archipelagoes of Tonga and Fiji (Viti or Fiti) did not supply the name, but are derived therefrom. From skirmish to pitched engagement these reprisals grew as the Proto-Samoans, driven from the seashore to inner recesses of their islands, recovered strength in resistance. At last came the critical battle of Matamatamē, somewhere about 1200 of our era or a little earlier. The Tongafiti were expelled from Samoa and began their eastward wanderings as far as Hawaii and New Zealand, the era of the great voyages.

3. Nowhere in the present data are we able to pick up the track of the Tongafiti prior to their descent upon Nuclear Polynesia. We have made it clear that they did not follow the Melanesian route between Indonesia and Polynesia. It must remain for the students of the Tongafiti collaterals to discover their route; our concern in this study has been to identify the migration that did sweep along the Melanesian chain.

The Pacific between the tropics lies spread out in expanses of always pleasant sailing and interrupted, before the monotony of voyaging has begun to cloy, by green and delicious islands which ever invite. If in such geography it be proper to use the adjective compact of that which is essentially sporadic we may describe Nuclear Polynesia as a compact geographical unit widely separated from its neighbors. It lies in the South Pacific quite at the back of our world; it is very nearly contained in the 10-degree square bounded by the tenth and the twentieth parallels of south latitude and by the one-hundred-and-seventieth meridian of west longitude and the antimeridian. Its principal points lie in the apices of a triangle—Fiji to the westward, Samoa northeast at a distance of 10 degrees, Tongatabu southeast by 7 degrees, and between Samoa and Tonga a space of 9 degrees. Within the triangle thus outlined lie the islands of Futuna and Uvea; east of Tongatabu we find Niuē as an outlier; north of Fiji similarly lies Rotumā. Broad expanses of empty sea lie around this triangle in three directions, and the islets which are scattered over the waters north of Samoa are so tiny and of such little importance that we may neglect them, save for the note that their culture is in general Samoan in source. In the western quadrant the land nearest Fiji is in the New Hebrides at a distance of not less than 10 degrees and the largest land-mass is the

New Caledonian complex, 13 degrees away to the southwest. In the southern quadrant the nearest inhabited land is New Zealand, 20 degrees remote from Tongatabu. In the eastern quadrant the nearest land is the Cook Islands, 16 degrees southeast of Samoa.

Of the utmost simplicity in its geographical statement, widely removed as it is seen to be from contact with its neighbors, Nuclear Polynesia presents to our view a picture of considerable ethnic complexity. At least two races and their cultures have there entered into competition and offer for our efforts at disentanglement resultants which vary in each of the datum-points of the area. Furthermore, the superior culture makes its appearance in twofold stages of development. At the epoch when the arriving Polynesian culture, at a period which there is satisfactory reason to synchronize with the earliest centuries of the Christian era, advanced upon the occupation of this Pacific area we postulate two conditions affecting the region: The far-flung archipelago of Fiji (two major land-masses in Viti Levu and Vanua Levu, hundreds of smaller islands surrounding a central sea) was in occupation of a folk whose immediate affiliations—somatic and racial, and cultural and social—were with some one of those westward-lying peoples whom we class as the Melanesians. The island groups which determine the eastward apices of the triangle were empty of humanity; no trace of somatic admixture is now found which can not be attributed to amalgamation with the Melanesians of Fiji during the period of intercourse for which we have abundant documentation in a large corpus of myth-history handed down in tradition congruent in the memories of diverse members of the race; the soil, although it is constantly revealing its inmost secrets under the downpour of tropical rains, has disclosed not a single artifact which suggests a culture in the least anterior to that of which the present occupants of the soil were possessed at the time of their discovery.

This complexity of two major elements—in fact, for our practical consideration a complexity of a Melanesian and of two Polynesian elements—must underlie any study of the art and industry of Nuclear Polynesia as exhibited in its club types. These implements, the summit of the useful in savage life and therefore worthy to receive the summit recognition in ornament, are the highest expression of human purpose; they are in essence the life of the man, the joy of living which falls but little short of the joy of dying. It may not be altogether possible to resolve satisfactorily all the elements of this complexity. The postulated Melanesian factor which is at its dominant position in Fiji may not be single in itself, for no one has yet systematized the interlacing of various elements in the peoples commonly set apart as Melanesian, yet it is evident that upon linguistic grounds approximately colimital with cultural distinctions there must be at least three groups of Melanesians. During the present inquiry we shall regard

the Melanesian of Fiji as simple and in the course of the study of the material shall endeavor to point out upon the geographical base such correspondences of the manner of these artifacts as may be observed to subsist between Fiji and other areas of Melanesia. In the Polynesian element it is feasible through linguistic methods to apportion the predominating element, whether Proto-Samoan or Tongafiti, to the various island units. The extent of the contamination of Fijian with Proto-Samoan and of Fijian with Tongafiti may not now be stated in gross; we shall note in detail the distinction of the contamination factors when they arise in connection with the study of individual types of club forms.

Samoa in its present state is of the Proto-Samoan migration source, with an overlay of the Tongafiti.

Tonga is principally Tongafiti, with a bottom layer of the Proto-Samoan.

Niuē has a large amount of linguistic material not elsewhere to be identified. If my interpretation of certain facts in the life of Niuē be correct, we find here a Proto-Samoan community which has been able to oppose a stout resistance to the harrying Tongafiti. It has long been the custom of Niuē to kill all newcomers rather than admit them to the island life, and it is peculiarly significant that in the language of the island the designation of all strangers and of everything foreign, therefore to be destroyed, is still *tonga*. It does far more than suggest a recollection of Proto-Samoans fighting for the peace of their own life against the cruel Tongafiti.

Futuna and Uvea, lying within the triangle, close to the Samoa-Fiji side, show a very nearly equal admixture of the two Polynesian elements. In the material at present available it has proved impracticable to differentiate the two islands in this particular. In many cases where one speech shows Tongafiti stock the other is quite as clearly Proto-Samoan, and these differences appear in each direction without any regularity.

Fiji itself is affected in language by Polynesian very nearly to the extent of half, and we find evidences of varying admixture with one or other Polynesian element. If there were better records of the great dialect diversity of Fijian speech it might be possible to delimit the two elements by area. In general it may be noted that the Tongafiti element most strongly appears in southeastern Fiji, Viti i Lau, where the Tongans have exerted a great influence during modern historical periods. To leeward, Viti i Ra, there occurs valuable material which tends to establish several of the differences which set the Proto-Samoan apart from the Tongafiti.

Rotumā is probably to be regarded as carrying an admixture of the Melanesian akin to the Fijian with the Proto-Samoan and practically no Tongafiti. In linguistic examination it offers particular puzzles by

reason of the frequency of metathesis. An extremely sage Samoan who had listened to the speech of Rotumā was in a state of bewilderment until he caught the clue to this metathesis; his comment was: "Why does the man speak backward?" In the region of myth confirmation is particularly strong, for Rotumā agrees with Samoa in many details of events which are not known to other Polynesians.

The lacunæ in the museum collection of the clubs of Nuclear Polynesia are far slighter than those in similar collections. They fall under two heads: lacunæ of provenience and lacunæ of type. There is here but one club from Niuē, none at all from Futuna and Uvea. This is commonly the case with all museums. Niuē has set such a forbidding face to all intercourse with strangers that the articles of its material culture have very rarely passed into alien possession. Futuna and Uvea were early drained of their culture objects by the French mission priests, who have firmly established themselves there in a far-reaching system of education. The French museums contain all these objects and they are quite rare elsewhere, except for the fortune which gave the museum in Sydney, Australia, a small but well-chosen collection. Only one of the types of these clubs of Nuclear Polynesia is lacking to the museum collection—the very interesting horned club or *nifo'oti*. Through the courtesy of Miss H. Newell Wardle, curator, it has been possible to include in this dissertation notes upon two implements of this type which are in the possession of the Academy of Natural Sciences of Philadelphia; from the same source we are enabled to enrich the notes upon the mushroom club or *fa'alautaliga*, of which the museum possesses one excellent piece, by notes and photographs of the academy's brilliant example. Through this kindness it has been possible to discuss this theme in its entirety upon material all of which is accessible in Philadelphia.

In plates I–III will be found a series of pictures exemplifying all of the Nuclear Polynesian types except the *nifo'oti*, an omission which is made good later in the work in connection with the discussion of that type. It will serve an end of convenience to list here the distinctive designations which have been assigned to the several types.

Missile club	Plate I, a, b, c.	Staff	Plate II, f.
Serrated club	I, d, e, f.	Lipped club	II, g, h, i.
Mushroom club	I, g.	Mace club	III, a, b, c, g.
Crescent club	I, h.	Talavalu club	III, d, e, f.
Billet club	II, a.	Coconut-stalk club	III, h, i, j.
Rootstock club	II, b, c.	Paddle club	III, k, l.
Pandamus club	II, d.	Carinated club	III, m.
Axe-bit club	II, e.	Nifo'oti	IV, 6.

Savage weapons though they be, these clubs are an early chapter in the history of all war, in the history of every war; two hands hold each club, the hand that makes and the hand that wields, the munition worker and the man at the front. We must familiarize ourselves

with the knack of each hand if we are at all to comprehend these weapons of deadly offense. Each art will afford interest, and we are to find that our savages of Nuclear Polynesia have developed two arts of the club. They at least have given the higher honor to the munition worker; he has a position in their social scale just below the highest rank of life.

Thus it is proper to consider in the former place the maker of the clubs. In some of the illustrations several clubs of the same type are grouped for comparison. These illustrations in a small degree, such detailed examination of the pieces as it has been possible to make, will convince the observer that each type of club has its own art, its own canons. Nothing is left to chance; each type is the product of trained artisans following an ancestral model, although without comprehension of its motive, and turning out a uniform article. It would be feasible to infer the club-makers even if there were naught to go upon save their work. Yet there is fuller information; on the Polynesian side we know about the *tufuga*, on the Melanesian side in Fiji we know about the *matai*. Under whatever name designated, these are the artificers of the community, the workers of wood and the workers of stone. In both racial stems they have, as of indefeasible right, their own high place in the social order; in the accidentia of their position, in the extension of their powers such as always is within the power of the man who does and who is therefore the man of ambition, the two races divaricate in detail. The Fijian *matai* creates political power through his art; he has been known to overthrow weak chiefs despite hereditary power; he has been found to lay down a stronger than divine law to priests. In Samoan the *tufuga* is not infrequently king and priest, who is content to exercise in his handcraft the power of the throne and the altar. Because he has the skill of hand, because in a torpid life his is the one touch of industry (in the following notes it is not wholly fortuitous that we find but few pieces incomplete), he is thaumaturge; there is no limit to what he may make of himself. Here is evidence (anticipated from my forthcoming work upon the courtesy phrases of Samoa), the honorific titles of the somewhat considerable town of Safotulafai on the island of Savai'i, phrases which must constantly be interwoven into the address of every visitor who would appear in good form.

Tulouna a 'oe, le tufuga pule.
Tulouna a 'oe, le tufuga to'atama'i.
Tulouna a 'oe, le tufuga alofa.
Tulouna a 'oe, le fa'atufugaga.

Because *tufuga* means so much more than mere artisan, worker of wood in club and house and canoe, I shall let it stand in the translation without weakening it by turning into unexpressive English. In

the successive phrases one says: "Saving the grace of thee, the *tufuga* who is the lord, the *tufuga* who rages in wrath, the *tufuga* who shows loving-kindness; saving the grace of thee, the craft of the *tufuga*."

The club-workers are an hereditary class, yet in the complexity of the family of the Pacific islanders fresh blood may be brought in by the exercise of the custom of adoption. They are as close as a medieval trade-guild; they are as strong as a union in the labor trades. No man may make a club save one of their guild; none may use a club unless they have made it; even they carry out the principle of the closed shop to such an extent that battle has been declined because of the improper presence of a bludgeon which had not yet received the touch of the club-worker's art. The beginning of the modern history of Samoa is the onfall of Matamatamē when the Samoans drove out the oppressors, and the Matamatamē fight begins in the act of a brave lad who stole the mooring-pole of the canoe of the king of the Tongans, wrought it into a club with *mana* or cosmic might, and put the foe to flight. Hailed for his victory by his vanquished enemy in the lay—

'ua malie toa!	Well done, fighter!
'ua malie tau!	Well done, fight!

this lad Savea became the first of the Malietoa, and the Malietoa might has always remained bound up with the *tufuga* honors of Safotulafai.

The clubwright's craft is essentially conditioned by the material in which he works and by the tools with which he works. Each of these conditions needs such careful record as is possible to one who has seen the workers at their work and has received information at the first hand about their various problems.

The only material used for the clubs of Nuclear Polynesia in the present period is wood. In none of the traditions does any word suggest a reference to the use of stone or shell in this type of implement. Yet in distal sites of the later Tongafiti culture there is frequent use of stone alone, as among the Maori the stone club *mere*, and the stone in a wooden haft *patupatu*. In some of the types here under consideration it is hoped to demonstrate an interesting peculiarity of the association of wood and stone in evolution. Several dense and straight-grained timbers are employed; the principal reliance is set upon the very heavy and almost indestructible *Casuarina equisetifolia*, and in the Samoan *pautoa* and the Fijian *utoninokonoko* the club names alike signify the heart of ironwood.

In getting out the rough lumber the clubwright must pay particular attention to that which will save him as much as possible of the labor of blocking out the pattern. Branches serve as material for clubs of the billet type in its smaller sizes, for the staff, for the *talavalu*, and for the coconut-stalk type. The branch and crotch with a part of the

adjacent trunk is in use for the clubs which exhibit a curve at the head, such as the pandanus and certain of the lipped clubs. Stout saplings with the immediately adjacent root are in use for the missile and rootstock types. For all clubs in which the width is markedly greater than the thickness it is necessary to get out boards from the trunk, this being accomplished by working the lumber down to a plane of satisfactory width and then by riving off a board by the use of the stone wedge. This accounts for the clubs of the serrated, the mushroom, the axe-bit, the *nifo'oti*, the paddle, and the carinated types, as well as certain of the coconut-stalk and lipped types more conveniently worked in that form.

The tools of the clubwright are fire with which to char the wood, the stone axe *toki* with which to chop away the charred wood, a series of smaller adzes of varying sizes with which to complete the shaping when the final form is so nearly approximated as to preclude the use of fire, rasps made of the skin of the skate stretched green over a chip and permitted to contract on drying into a fixture, the stone wedge *tina* for riving plank, a nullipore *'ana* used as a pumice stone for the final polish. These serve to shape and finish the club. For the ornament, which is a later process and which may extend over years during which the implement is in use, the principal tool of incision is the tooth of the shark in the absence of any rock which will take and hold a fine point without splintering. The shark's tooth is peculiarly sharp, but soon blunts after the first few cuts and is discarded for a fresh one, the supply being limitless. In many pieces it is readily possible in the marks of the cutting in the incisions to distinguish between ancient work and that which has been made since the introduction of iron by Europeans.

Before entering upon the consideration of the cudgel-play or school of arms of the club, it will be found convenient to record the terms in the several languages relative to the club in its various forms. The record in each case is brief; the slim vocabularies which we possess from the languages of the region are the work of missionaries who found little to interest them, probably something to disquiet them, in the weapons which might be used in opposition to the introduction of the new culture. So infrequent has been the attempt to describe the clubs that it has been found advisable in this record to set by themselves such words as are defined by our authorities merely with the words "a club."

SAMOA.

aigofie	a clubbing match.
'āilao	to brandish a club; cudgel play; club fencing.
'aimămă	to be severely beaten with clubs or fists.
'anava	the club of a great warrior handed down as an heirloom.
'ele'eleuli	complimentary term used of a skilled club-fighter.
fa'aagagaina	to brandish a club.
fa'alagatā	to give a blow in order to commence a club match.
fa'anunutā	to give a number of blows in a club match.
fa'apou	a large-headed club.
fa'atuetue	to call out *tuē* when one falls in a club match.
faivaāulima	blows of a club struck at random.
fanene	to fall slowly when struck by a club.
fefulitua	to turn back to back at the beginning of a club match.
fenavunavua'iina	to be beaten all over the body with a club.
fetā'i	to fight with clubs.
la'au	generic term for clubs, literally wood.
lagapalo	to fight a second time with one's conqueror.
lapalapa	a coconut leaf-stalk used as a club.
lauulumafa'i	easily knocked down in a club match.
malae'ese	to be fighting on the side of the town green, where it was not usual to contend in club matches.
mālofie	a club match.
manene	to fall slowly from the blow of a club.
matăfatu	of one who takes a blow without wincing, literally stone-face.
matamalae	defiant gaze when going into battle.
nafa	to appoint, as to be with one of the opposite party in a club match.
nifo'oti	a flat club toothed on one edge and bearing a horn on the opposite edge of the head retroverted.
oli	to brandish the club in challenge to combat.
'olo	a short knobbed club carried by young men.
pau	a tree from which clubs are made.
pomalae	not to know a friend, but only to desire to win in club matches.
sa'e	to elevate one leg, as when falling in a club match.
saitamu	a tree used for clubs on Tutuila.
saulu	to cut off the end of a coconut stalk for a club.
sema	to engage with another to be his antagonist in a match.
si'itā	to raise the arms to strike a blow with a club.
sosoni	a cutting blow with a club.
tā	to strike with a club or any weapon.
talitā	a club used as a shield to ward off spears.
tapoto	to strike cleverly with the club.
tāsele	to strike in the belly with a club.
tatavale	an indecisive blow with a club.
taualuga	to raise the hands in holding a club.
taufetā'i	to engage in a club fight.
taulalo	to lower the hands when conquered in a club match.
tolopa'ā	to give way in a club encounter.
to'oto'o	a staff.
toulu	to take a blow on the head from a club.
tuulu	to cut off the end of a coconut stalk for a club.
ulu	the head of a club.
ulupale	the head of a club cut out of a coconut stalk.
vāefua	to separate in a club match without decision.
vilivili	to brandish a club.

CLUB NAMES.

fa'amauga	**pautoa**	**tapa'e**	**to'oalo**
fa'amo'ē	**povai**	**tapū**	**uatogi**
mo'ē	**talavalu**	**tina'ava**	

FUTUNA.

apaapai	to hold a stick horizontally in both hands.
fakakai	to go through the motions of striking a blow.
fakaiago	to parry a blow.
fetaaki	to exchange club blows.
kailao	to challenge to a combat with clubs.
kanava i laakau	remains of a flat club.
malomu	a small round club.
saàki	sound of a blow.
ta	to strike.
tokotoko	a long stick.
tui	a club.

TONGA.

abaabai	a coconut-stalk club.
akau	generic term for clubs.
babahu	to strike each other with clubs.
ene	to display the club in challenge to combat.
fakaboi	to fence with clubs.
fehaunamuaki	to fence, to practise the use of weapons.
fehokaaki	to strike with the end of the weapon.
fetaaki	a club fight.
fetalatagataaki	to challenge one another.
hahabo	to strike with a club.
hahau	to strike brandishing over the head.
kolu	a club split or broken in war.
taene	to work the club in challenge.
tokotoko	a walking-stick.

CLUB NAMES.

bakibaki	**bukibuki**	**jikota**	**kolo**
bovai	**gaji**	**kata**	**mata**

NIUĒ.

akau	a weapon.
fututū	a felling-axe.
katoua	generic term for clubs.
kaupapa	to ward off a club blow from the chest.
papa	a club.
patali	to ward off or parry blows.
punuti	a guard in fighting when the club is held horizontally over the head
tokotoko	a staff.
uluhelu	a long club curved at one end.
uluolu	a tree from which clubs are made.
ulupuku	a short club used in one hand.

FIJI.

mbatinisèsè	a club.
mbolembole	a challenge by brandishing clubs.
mbowai	a club.
mbure	ten clubs.
dhimbidhimbi	a club made from the tree of that name (? *Parinarium laurinum*).
dhuladhula	a club.
ndoko	a staff.
ndui	a club.
ndulaka	to lift up the club with one hand in challenge.
ngandro	a club that has killed men; it is ceremonially bathed.
ngandi	a club.
kauloa	a club, of the longer billet type.
kiakavo	a club.
kinikini	a broad kind of club.
koroi	a new name of honor given in the consecration of a man who has killed his enemy with a a club.
kosokoso	a club.
lamba	to strike a blow.
langa	to be lifted up, of a club ready to strike.
lali i Degei	a club.
lake	the shaft of a club.
longga	a club.
mandā	a club made from the tree of that name.
malumu	a club (cf. Futuna: *malomu*).
matalava	a club.
meke ni wau	a club dance.
moku	to strike dead with a club.
muaivi	a club.
nggata	a club.

nggunggu	a club.
rumberumbe	a becket rove through holes in a club for suspension.
sambaya	to ward off a blow, generally by holding up the club with a hand at each end.
sakita	to challenge.
sakuta	to knock on the head.
sali	a club.
samuta	to beat with a heavy club or bludgeon.
sau malumu	to cut clubs.
silikaya	a club.
taimbā	a club.
taledha	a club.
tatuki	wounded or beaten with a club.
tembelaka	to lift up a club.
teivakatoga	a club.
timitimi	a club.
totokia	pandanus club (Fiji: *tokia* to peck).
tumbetumbe	the grip of a club.
tundonu	a club.
tuki	to hit with a club.
ula	a short missile club.
ulaka	to throw the *ula*.
utoninokonoko	a club.
vavanggumi	war custom of taking the club of one who has killed.
waka	a club, rootstock type.
wau	generic term for clubs.
wesi	a dance with a spear in the right hand, a club in the left.
yadrayadra	weapons of one on guard
yarangi	generic term for all weapons, inclusive of spears and clubs.

In the foregoing record there is an abundance of terms which set out in suggestive detail the match at cudgel play. It is easy to see in this list that, if clubbing matches so engaged the attention of the people as to give rise to a special vocabulary, the use of the club for its appointed lethal end must have been improved by the amateur practice and the discovery of operative methods of attack and defense. The introduction of fire-arms operated largely to discourage the school of the club; that interesting arm lost its value in the field and was caught in the tangle of commerce which has eventually brought it into museum custody. Yet in the eighties of the nineteenth century, club contests still survived in Samoa and Tonga, and in the mountains of Viti Levu the ancient art of the club flourished with little diminution of its interest to the appreciative spectators and undoubtedly with much of the old-time skill on the part of the contestants. Even to the present day the dramatic dances of the club hand down in rhythmic show much of the fencer's art, these being particularly interesting in Fiji, where the *meke ni wau* is a most dramatic spectacle under the soft rays of the full moon, and in Uvea, where a highly specialized art of the club is shown in the dance. The following notes on club fencing are compacted from the spectacle of club matches, from the dances of the club, and from the vocabulary material here assembled.

The art of this weapon is conditioned by the weight of the implement and the musculature of the fighter. Many of these weapons weigh as high as 12 or 13 pounds. Two factors engage with this matter of weight: part of it arises from the need of securing such strength in the shaft as to avoid the chance of breakage in combat (Tonga: *kolu*), part massed in the head in order to add to the force of impact in the common smashing blow. In the general recension of these ethnica the attention is immediately challenged by observing the fact that while the Polynesians uniformly employ clubs of extremely heavy type,

there is a marked difference when we pass westward into Melanesia and find that the clubs scarcely exceed 5 pounds at the maximum, and even in that case the weight is not structural, but is obtained by the addition of stone heads. This difference in club weight closely parallels a corresponding somatic difference in the peoples.

One is conscious, in the study of the Nuclear Polynesian clubs, of a certain correlation roughly subsisting between weight, length, and the character of the wound sought to be inflicted. The wounds are somewhat sharply distinguished between contusions and incisions; the club-head varies correspondingly. On Plate I, clubs *d*, *e*, *f*, and *h* have cutting-edges sufficiently sharp to deliver a wound of incision. (Samoa: *tasele; ta* to strike a blow with a weapon, *sele* to cut, to slash; the vocabulary definition to strike in the belly arises out of the fact that such a blow would be most effective when applied to the soft parts of the body.) Club *g* on the same plate partakes of the form of the cutting club, but is effective by reason of the points of its cusps. On Plate II club *e* falls into the same class; club *i* has an edge, but is properly to be classed with the impact clubs. On Plate III, clubs *j*, *k*, *l*, and *m* are cutting clubs, with which in the case of clubs *k* and *l* is associated another school of fence. With the exception of the two monsters, clubs *d* and *f* on Plate I, this type of club is thin and light in relation to its length; in clubs *j*, *k*, and *l* of Plate III it is unmistakable that the excessive length is expressly designed to secure greater force in the delivery of the blow with a light weapon and thus to obtain the stunning effect which in impact clubs is accomplished by greater weight with a shorter shaft.

Of the clubs which are effective through contusion rather than incision, we have on Plate II excellent examples in clubs *a*, *b*, *c*, *g*, *h*, and *i;* club *d*, requiring a distinct art which will be considered in the detailed consideration of that type, is not to be classed with the impact clubs with which superficially it might be grouped. On Plate III several mixed types occur. Clubs *h* and *i* with cutting-edges, as in *j*, *k*, and *l*, have weight by reason of the greater thickness of the head; therefore they acquire the same effectiveness with considerably shorter shaft; in other words, they add impact to incision. Clubs *a* and *g*, beset with sharp points, combine in the elements of length and weight the impact value with the tearing of the flesh which is the purpose of the teeth, and in a slightly less degree the same is true of club *f*. In clubs *b*, *c*, *d*, and *e* the chief value lies in the provision for flesh laceration, and therefore the type is characterized by marked diminution in length, to which is added in club *b* impact value by reason of its weight. Yet the tiny but most effective club *c* with very acute teeth and the scarcely larger club *d* depend for their value solely upon the puncturation of the flesh which their teeth can effect and in use are subsidiary clubs employed to give the *coup de grâce*.

The rules of the club match hold with little change upon the stricken field. Of course, in the general mellay blows are given and taken as best they may, but when the champions of opposing armies have issued the challenge Polynesian formal dignity may be relied upon to see that the combat proceeds in order.

First comes the challenge (Samoan: *oli*, to brandish the club, to wave it to and fro with the head upward, or *vilivili*, to advance the weapon toward the enemy with the head slightly declined and to cause it to rotate by striking light downward blows through a few inches upon the left hand, which at the moment of impact is sharply dragged over the middle of the shaft; Futuna: *kailao*, to brandish in wide sweeps of the weapon; Tonga: *ene* and *taene*, to dart the club toward the foe in quick and short movements; Fiji: *mbolembole*, to smash the head of the club heavily upon the ground of battle, and *sakita*, to swing the club in long downward sweeps over the soil, as in act of brushing away irregularities of the ground of other obstruction as having no value). The challenge thus delivered is similarly accepted (Samoa: *sema*).

Next comes the parade at arms as the contestants stride gravely to the clear space between their respective war parties (Samoa: *matamalae*, to eye the fighting green, the look of defiance, the fighting face; *pomalae*, a still more gloomy glower, literally darkness upon the fighting green).

Next the seconds take their place (Samoa: *nafa*), each to the left of and slightly to the rear of his principal's opponent; their purpose is obscure; by reason of their position they can not engage in a secondary contest after the earlier French and Italian *escrime;* they can not well participate in the principal combat, for as soon as they come within the sphere of action they expose themselves to the end of any blow delivered at their respective principals.

Next follows the placing of the principals (Samoa: *fefulitua*) back to back, each facing his own party to receive the salute of clubs raised in air (Fiji: *ndulaka*), after which they whirl suddenly, leap back to position, and the fight is on.

Details of the combat may readily be extracted from the vocabulary material, but for simplicity of statement it is better to record such art of the game as has been observed.

With such heavy, to us extremely unwieldy, weapons the stance is of the utmost importance, and the object of each fighter as soon as he comes within reach of his opponent is to dig footholds, the left foot forward, and much of the chance of success in the combat rests in the fortune of being able to establish oneself firmly. The skilled fencer will not leave his foothold, if satisfactory at the beginning, until his adversary is disabled or gives ground (Samoa: *tolopa'ā*).

Extreme simplicity characterizes the art of the club; a blow is delivered and with luck is parried; there is no *coup de Jarnac*, no *botte de jésuite*, whereby to take advantage of the contestant whose guard is

down. Accordingly we may readily consider the art of club fencing under the successive headings of the blow, the parry, and the result.

In the play of the heavier clubs there can be but two positions from which the stroke can be delivered—overhead and over the right shoulder—and in the case of the larger edged clubs the latter alone is feasible. To deliver the stroke is expressed in Samoan and in the other Polynesian languages of this region by the verb *ta*, which refers to a stroke from above downward and outward; in the Fijian *tuki* implies the general impact of the club and *lamba* suggests a blow with a broad surface. In Tongan only do we find a particular designation of the blow as regards the point from which it is delivered in *hahau* as the stroke from over the head. The preparation for this type of stroke is variously indicated in the several languages. The following words denote the raising of the hands and the club to the position in which the stroke may begin: Samoa, *si'itā* and *taualuga;* Fiji, *langa* and *tembelaka*. In Samoan the first blow of the contest is *fa'alangata;* strokes at random are *faivaāulima;* a general rally of several interchanged blows *fa'anunutā;* strokes that are ill-directed and miss the foe are spoken of as *tatavale*, in contradistinction to *tapoto*, which signifies fencing with good address and skill. It will, of course, be understood that with these heavy clubs it is necessary to use both hands.

Against these heavy blows the opposite party opposes either guard or parry, the general term being: Samoa, *talitā;* Niuē, *patali;* the signification in each case being to receive the stroke upon the opposing club. In several of the languages a specific term exists for the guard against the downward cut directed upon the head: Futuna, *apaapai;* Fiji, *sambaya;* Niuē, *punuti;* the sense in each being to hold the club horizontally above the head and on it in this position to receive the blow. The shift in position is made with remarkable facility from the stroke poise, in which the hands are already elevated; the left hand is diverted to the left and sharply upward, clutching the haft and drawing the club through the relaxed right hand, which again clutches the shaft near the head and is itself in turn sharply raised, the maintenance of the horizontal position of the club being essential in order that the hands may not be disabled by a glancing blow. In Niuē, without further description of manner, *akau punuti* and *akau pāpā* are noted as guards of the head and chest respectively. Considerable dexterity is manifested in evading blows by shifts of body-position (Polynesian, *kalo;* Fiji, *leve*), either by bending away from the coming stroke or stooping so that it may pass harmlessly over. In the club dances the performers escape cuts at the legs by leaping in the air, but in actual combat it is quite impossible that any such practice is resorted to, since the importance of the stance is paramount.

The paddle clubs exhibit some advance in the science of arms. They may be employed in cutting blows and also for the value of the thrust

(Tonga, *fehokaaki*, to strike with the end of the weapon). Very considerable skill is exhibited in the handling of this weapon; by reason of lightness the stance is less important and change of position is frequent. In fact, it is this weapon alone which would engage any attention from the North Devon cudgel-player; the ordinary wielder of the heavy club would find himself soundly trounced by a man skilled in cudgel-play or the quarter-staff and could interpose no defense to the rain of blows. The thrust is not found in Fiji; it is a Polynesian art and reaches its best development in Futuna and Uvea.

The vocabularies afford various pictures of the events in a club contest. In the Samoan *matafatu* (visage of rock) there is the contestant who stands up unmoved under the blow; *lauulumafa'i* (hair mussed) is used of one who goes down easily under a blow; *fanene* and *manene*, to sink to the ground when the knees give way through the shock; *sa'e*, to be quite capsized and throw the leg in the air in the fall. In the Samoan, *sosoni* and *tasele* describe the cutting stroke of the edged club, and Fiji *samuta* the stroke of the heaviest clubs. In the Fijian, *sakuta* is to land a blow on the head; Samoa, *toulu* to receive one there. The tale of wounds is in the following terms: Fiji, *tatuki*, beaten with clubs; Samoa, *aimămă*, severely beaten; *fenavunavua'iina*, beaten all over, quite as the lime dressing for the hair (*navu*) is dusted all over the head; Fiji, *moku*, to strike dead; Samoa, *taulalo*, to lower the hands in sign of defeat and thereby to give up the game. Last scene of all, battle over, the victor tosses his club in air and dances as best he may; his war party in Samoa, *fa'atuetue*, raise the triumphant shout of *tuē*, with the final vowel immensely prolonged.

Quite as simple is the play of the single-handed clubs, except in one particular, where the lighter facility of the weapon conditions some slight change in method. With this quickly manipulated type of weapon stance ceases to be of importance; the contest is rather of agility than of endurance, and each fighter hits and dodges in unintermitting advance and retreat until the chance of a well-directed blow gets home. Here again the competent fencer could hold himself perfectly safe; one skilled with the cutlass would find no difficulty in guarding every possible blow which the club-player could address.

CHAPTER II.

TYPES OF THE CLUBS.

Having presented the preliminary notes in the foregoing chapter, the examination of the several pieces in the collection assembled in groups of the particular types may follow. A beginning is made with the simplest form, that which comes closest to the mere branch torn from the tree, which it has been somewhat considerably, but perhaps quite as inconsiderately, the fashion to postulate as the earliest advantage which the possession of reason gave to the man-brute over the other brute.

BILLET TYPE.

Plate II A. Provenience: Fiji, Tonga, Samoa.

The museum has no specimen definitely ascribed to Samoa, but in Krämer's Samoa, II, 210 (*d*, *f*, *h*, *k*), 213 (78 *e*), and 218 *c* are excellent illustrations of the type accredited to Samoa; all in Stuttgart, except 78 *e*, which is in Berlin. The speech record is confirmatory: Samoa,

TABLE 1.

Length (inches).	Piece No.	Length (inches).	Piece No.	Length (inches).	Piece No.
27	3100 *b*	39	3147	43.5	2491
31	3100 *a*	40.5	3147 *a*, 2489	43.75	2493
31.5	3177	41	2267	44	3185
33	3780	41.5	3780 *e*	45	2488, 3186
34.5	2265	42	3184, 3144, 3780 *d*	46	3780 *c*, 3780 *a*
37	2492	42.5	3143	49	2490

povai; Tonga, *bovai;* Fiji, *mbowai.* Though it is not requisite, I add the support of my own observation. Specimen P 3100 *a* appears in the collection with no note whatever of provenience, but interrogatively accredited to Fiji. Inasmuch as it is of a form very familiar to me in Samoa, carries the lug at the end of the haft, which, though not exclusively, characterizes Samoan types, and has the ornament picked out with chunam, which is even more distinctive of Samoan art—by reason of the cumulation of these reasons I do not hesitate to assign this club to Samoa and in all likelihood to Tutuila.

Until success has been attained in establishing the metrology of the Pacific islanders, toward which this paper is in part to serve as an introductory essay, it will be necessary to tabulate measurements with considerable minuteness. Table 1 groups the length over all, stated in inches, of the 23 pieces which fall within this type.

It is not yet clear whether the differences in length are minutely significant, yet at some point in the scale it is likely that we shall find

a general division between the shorter clubs intended for use with one hand and the great two-handed weapons. The material in hand may be grouped as follows: 27 inches long, 1; 31 to 34.5 inches, 4; 37 inches, 1; 39 to 42.5 inches, 9; 43.5 to 46 inches, 7; 49 inches, 1. Upon measurements to be derived from other series elsewhere preserved we should expect to find the line dividing the long from the short at 39 inches; in this group we sum 6 pieces shorter than that, 17 longer. The measurements of the hafts afford table 2.

Here three haft sizes are apparent: 3.75 inches to 4.25 inches with 5 pieces; 4.5 to 5.5 inches, 16; 7 to 7.5 inches, 2. In general, the lesser haft corresponds with the lesser length of the weapon, yet the haft size is governed by the grasp of the fingers. It is possible to find a distinction between the one-handed and the two-handed clubs. Thus the smallest haft is found on a billet which by reason of its length requires both hands to wield it. In the other direction we find but two of the short clubs (2492 and 3100 *b*) which have a haft of 5 inches. In the case of the two-handed clubs the size of haft within such limits

TABLE 2.

Length (inches).	Piece No.
3.75	3780 *e*
4	3177, 3100 *a*, 3147
4.25	2265
4.5	3780 *c*
4.75	3184, 3144
5	3147 *a*, 2267, 2492, 3186 3100 *b*, 3780 *d*, 3780, 3780 *a*
5.25	3143, 2493
5.5	3185, 2491, 2490
7	2488
7.5	2489

as are here observed counts for nothing, for the employment of both hands establishes a firm hold on any dimension which it might be in other respects convenient to employ. When the security of the club in the swinging and still more in the shock of impact depends upon the clutch of a single hand, the extent is distinctly limited by the distance at which the thumb may be apart from the opposing fingers and yet exert an effective clutch.

Not limited by the physics of the fingers, the measurements of the butt are conditioned by two factors which we may not wholly distinguish, yet which will be recognized as effective. One factor is the adjustment of the weight essential to the impact force of the weapon at such a point as to bring the center of gravity effectively far from the grip, the other is to adjust this physical constant to the cosmetic instinct of producing not only an effective club, but a handsome one.

These two elements are presented for record in table 3, not only the butt measurement, but the difference in circumference between the butt and the haft being given.

TABLE 3.

Piece No.	Girth of butt (inches).	Difference between butt and haft (inches).	Piece No.	Girth of butt (inches.)	Difference between butt and haft (inches).	Piece No.	Girth of butt (inches).	Difference between butt and haft (inches).
3184	7.25	2.5	2491	6.5	1.5	3147	5	1
3147 *a*	7.25	2.25	2488	8	1	3780 *c*	5.5	1
2267	9	4	2490	7	1.5	3780 *d*	6.5	1
3144	6	1.25	2489	8.5	1	3780 *e*	6.25	2.5
2265	7.25	3	3186	7	2	2493	6.75	1.5
3177	5	1	3143	10	4.75	3780	6.5	1.5
2492	6.5	1.5	3100 *b*	6	1	3780 *a*	5.25	0.25
3185	10	4.5	3100 *a*	5	1			

A part of these records is rearranged in table 4, so far as relates to the circumference of the butt.

TABLE 4.

Girth of butt (inches).	Piece No.	Girth of butt (inches).	Piece No.
5	3177, 3100 *a*, 3147	7	2490, 3186
5.25	3780 *a*	7.25	3184, 3147 *a*, 2265
5.5	3780 *c*	8	2488
6	3144, 3100 *b*	8.5	2489
6.25	3780 *e*	9	2267
6.5	2492, 2491, 3780 *d*, 3780	10	3185, 3143
6.75	2493		

Here we find 5 clubs having a butt circumference of 5 inches and its fractions, 8 in the sixth inch and its fractions, 5 for the seventh inch, 2 for the eighth, 1 for the ninth, and 2 at 10 inches. This fixes the average in the sixth inch.

TABLE 5.

Difference between girth of butt and haft (inches).	Piece No.	Difference between girth of butt and haft (inches).	Piece No.
0.25	3780 *a*	2.25	3147 *a*
1	3177, 2491, 2488, 2489, 3100 *b*, 3100 *a*, 3147, 3780 *c*, 3780 *d*	2.5	3184, 3780 *e*
1.25	3144	3	2265
1.5	2492, 2490, 2493, 3780	4	2267
2	3186	4.5	3185
		4.75	3143

The difference between the circumference of the butt and of the haft, which is to be understood in an additive sense in reference to haft measurement, should be instructive in regard of the general shape of this type of club. These figures are given in table 5.

From table 5 it appears that 14 pieces show an increase of between 1 and 2 inches, 4 of between 2 and 3 inches, 1 of 3 inches, 3 of between 4 and 5 inches. The single piece (3780 *a*) which exhibits the negligible difference of a quarter inch might quite as properly be classed with the staves.

The end of the haft offers several interesting points. The first which strikes the eye is the presence of a flange; this may be seen in Plate III *m* upon a club of another type. A flange is understood to be an enlargement of the extreme end of the haft on the proximal side of the grip, a sudden swelling within approximately the last inch. When the smallest diameter of the haft is at some distance from the end and the increase is gentle it has seemed better to describe it as a flare rather than as a flange, as has been done in P 3186. The flange is found in 7 clubs of this group—3184, 3147 *a*, 2267, 3144, 3185, 3186, and 3143.

The second point to be noted of the haft end is the shape, three forms being distinctly observed. The form which exhibits the least artifice is where the end of the haft is merely cut square across the shaft, found in 2265, 3177, 2492, 3147, 3780 *d*, and 3780 *e*. A specific variety in this form is distinguished by a shallow cupping of the end, as in 3184, 3144, 3185, 3186, 3143, 2491, 2488, 2489, and 2490. Some relation appears to subsist with reference to the element of flanging; all but two of the flanged clubs have the cupping, while only 3 out of 15 unflanged clubs possess this detail and 2 of these are cupped in a most unusual form. A further relation has to do with the other end of the club, for of the cupped clubs but 1 (3184) is associated with the square-cut butt, while the remaining 6 show the domed butt.

The third point noted of the haft end is the perforation. Two devices are found for the formation of the orifice through which may be passed the becket of sennit for the suspension of the weapon at home. The simplest form is a hole drilled diagonally from the head near the edge to the haft near the head, and in this collection are several cases in which the remaining septum of wood has worn through, destroying the usefulness of this type of perforation. A variety of the diagonal perforation showing one orifice on the head and two on the haft will present itself for consideration in a group later to come under examination. Somewhat more of artistry characterizes the second form of perforation. This is found on the end without any holing of the haft, two perforations drilled at such an angle as to meet, in some cases forming a distinct angle beneath the surface, in others ounded by the use of a file made of a strip of the skin of the ray. The

drilling is effected by the use of the pump-drill (*vili*, the whole instrument in Samoan; *vilipā*, the drilling-point of a stone flake or tip of shark-tooth). These two forms appear in these records as the diagonal and V perforation. Each form is found twice among the billet clubs, once each in the cupped and flanged pieces, once each in the unflanged and uncupped. These specimens are respectively, V-perforation, 3184 and 3780 *d*; diagonal, 3144 and 3780 *e*.

A fourth point noted of the haft end is the lug used for suspension. This consists of a portion of the end carved into one of several forms and either pierced or imperforate, in the latter case serving as a peg upon which to wrap the sennit becket. This lug is commonly of a thickness of an eighth to a quarter of an inch; it may occupy but a small part of the center of the head, or it may extend from edge to edge; it may lie in the plane of the blade or vertical thereto, the latter mark not being discernible in the billet type, owing to the absence of a blade. The lugs in the billet group are three; 3147 *a* and 3100 *a* have five-sided lugs upon domed ends of haft, 3100 *b* an inverted cone imperforate upon a dome.

The section of the shaft is generally circular, and this applies, with a few interesting exceptions, to all of the clubs. Two of the billets, 3184 and 2488, exhibit a well-molded ovoid section.

The butts are either cut square or more or less domed. Of the square-cut we note 3184 accompanying a cupped haft and flange, 3147 and 3780 *e* accompanying a square-cut and unflanged haft. Of the domed butts we note 2265, 3177, 2492, and 3780 *e* accompanying a square-cut and unflanged haft; 3147 *a* and 2267 accompanying a domed and flanged haft; 3100 *a*, 3100 *b*, 3780 *c*, 3780, and 3780 *a* accompanying a domed and unflanged haft; 3144, 3185, 3186, and 3143 accompanying flanged and cupped haft; 2491, 2489, 2488, and 2490 accompanying an unflanged and cupped haft.

In the following notes is a detailed record of the close inspection of the several pieces. The numerical order of accession has no pertinence, except for purposes of identification and preservation of the classificatory notes; the order of presentation represents the order of superficial resemblances of the pieces when laid out for comprehensive view.

P 3184. Fiji. Oldman.

Shaft: Length, 42 inches; circumference, haft 4.75 inches, flanging to 6.75 inches, butt 7.25 inches; ovoid section at haft, major axis 2.67 inches, minor axis 1.67 inches; ends, haft deeply cupped, V-perforation, butt cut square.

Ornament: Band-and-zigzag throughout; on flange of haft 4 transverse straps; remainder longitudinal bands with 2 single and 1 double strap at 2.5 and 5.5 inches and at end of ornament; ties of pandanus leaf.

Shaft: Length, 40.5 inches; circumference, haft 5 inches, flanging to 6 inches, butt 7.25 inches; ends, haft slightly domed, lug pentagonal, perforated, butt highly domed.

Ornament: 2 units, (I) 24 inches transverse band-and-zigzag, (II) 16 inches longitudinal band-and-zigzag, second unit marked by straps of basketry at ends and middle. These bands slightly differ; that nearest haft shows 3 transverse elements bordered by zigzag and highly marked band 0.25 inch wide; central strap 4 transverse elements; strap nearest butt 5 transverse elements, these bordered by plain zigzag. Haft end: Beginning 1 inch from end at point where flange ceases, sinistral spiral zigzag bordered by distinct bands of 4 complete turns in 17 inches to transverse strap of 2 broad zigzags; beginning at this strap same spiral continues for a half turn in 3 inches to a similar strap, and this is paralleled by a similar spiral diametrically opposite; above second strap 2 dextral spirals making a half turn in 3 inches and not articulating with former spirals. All of these spirals show leaves attached right and left at intervals of about 4 inches, which suggest application of a vine. Longitudinal stripes consisting of single diagonal with strongly marked outer bands recur at irregular intervals. The haft unit of decoration is crowded with human and animal figures which interrupt the conventional designs. The two animal figures are clearly turtles. Of the human figures, 2 are grouped, 5 appear independently; all are drawn with their feet toward the haft of the club, except in a single instance; in every case the arms are represented extended from the body at the elbows.

P 3147 a.
Fiji.
Oldman.
Plate XIII, 58; XIV, 60, 61; XVI, 131, 132; XVII, 133, 134, 135, 137.

Shaft: Length, 41 inches; circumference, haft 5 inches, flanging to 5.5 inches, butt 9 inches; ends, haft slightly domed, butt highly domed.

Ornament: 7 units, (I) in 1.5 inches transverse strap of 3 band-and-zigzag at haft; (II) in 8.25 inches longitudinal band-and-zigzag; (III) as unit (I), 12 stripes in 5 inches; (IV) sinistral spiral of same in 8 elements 3 inches wide making 3 turns in 13 inches, this alternating with 2 inches wide similar spiral; (V) as unit (III), 4.75 inches, 10 stripes; (VI) 2 panels 1.5 inches wide sinistral band-and-zigzag, 1 panel dextral of the same, separated by 3 bands 0.75 inch wide of same longitudinal in 3 elements; (VII) as unit (I) extended over dome and showing little trace of wear.

P 2267.
Tonga.
Oldman.

Shaft: Length, 42 inches; circumference, haft 4.75 inches, flanging to 5.25 inches, butt 6 inches; ends, haft cupped, transverse perforation, butt domed.

Ornament: Applied in a dextral spiral 2.5 inches wide making 18 turns and carried out upon the dome at butt. Design: Beginning at a longitudinal stripe of 2 band-and-zigzag a 1-inch panel divided transversely by a single band-and-zigzag into trapezoids, of which one is filled with sinistral diagonal band-and-zigzag, the other the same element longitudinally. This pattern repeated four times, then succeeded by a unit of same element sinistral diagonal, this by an equal unit dextral diagonal of the same, the two separated by a single band.

P 3144.
Tonga.
(Fiji ?).
Oldman.
Plate X, 12.

Shaft: Length, 34.5 inches; circumference, haft 4.25 inches, butt 7.25 inches; ends, haft cut square, butt domed.

Ornament: Spiral stripes of band-and-zigzag set in alternating panels dextral and sinistral through full circumference of club; these panels crossed longitudinally by 2 diametrically opposite stripes of 3 band units, the whole crossed spirally by 2 sets of 3 band units dextral and sinistral respectively, making 6 complete turns in haft ornament, which extends 12.5 inches,

P 2265.
Tonga.
Oldman.
Plate IX, 8; X, 11.

and 5 turns in butt ornament, which extends for 12 inches; the middle space of 9.5 inches corresponding to right-hand grip filled by 2 members longitudinal band-and-zigzag; this unit of the design is set off by 3 straps, initial, medial, and final, of 3 band elements; in this subdivision the element nearer haft has zigzag with band and is further distinguished by a panel 1 inch square of 3 elements of band-and-zigzag set transversely; element nearer butt has zigzag without bands. A knothole in one of the grip-ornament elements could have been discovered only after the labor of shaping the club—evidence that even a shaped bit of ironwood would be very highly regarded.

Shaft: Length, 31.5 inches; circumference, haft 4 inches, butt 5 inches; ends, haft cut square, butt slightly domed.

Ornament: 26 panels, each about 1 inch long, divided by straps of band-and-zigzag after fourth, tenth, sixteenth, and twenty-first panels; each panel consists of longitudinal and transverse band-and-zigzag elements; in each panel the 3 longitudinal stripes toward haft end commonly consist of 2 groups of 3 zigzag bands and 1 of 2 of the same; at butt end 3 bands in each group; in each panel one unit consists of 4 band-and-zigzag diagonally and two transverse; each of the latter has one element, that nearer haft, suggesting basketry and consisting of 2 units of 3 or 4 transverse bands separated by 2 longitudinal; the butt seems to have been treated throughout with stripes of band-and-zigzag which are apparent throughout, except upon worn summit of dome.

P 3177.
Tonga.
(Fiji ?).
Oldman.
Plate IX, 9.

Shaft: Length, 37 inches; circumference, haft 5 inches, butt 6.5 inches; ends, haft cut square, butt lightly domed.

Ornament: 8 inches at haft clumsily executed; 4 transverse straps each with 4 rows of squared knobs; 1 strap of uncertain design; 3 straps each carrying 4 lines of transverse zigzag.

P 2492.
Fiji.
Clark-Oldman.

Shaft: Length, 44 inches; circumference, haft 5.5 inches, flanging to 8 inches, butt 10 inches; ends, haft cupped, butt highly domed.

Ornament: In grip of 13 inches; on flange band-and-zigzag in 10 panels; 3 straps of same; 5-inch unit, longitudinal broken line, panel of transverse band-and-zigzag, 1 longitudinal band-and-zigzag, panel of transverse same, 1 longitudinal broken line, panel transverse band-and-zigzag; 6 longitudinal same; 2 panels transverse same; 3 straps same; 8 panels same; 3 straps same.

P 3185.
Fiji.
Oldman.
Plate II, a; IX, 5.

Shaft: Length, 43.5 inches; circumference, haft 5.5 inches, butt 6.5 inches; ends, haft slightly cupped, butt slightly domed.

Ornament: Grip of 9.5 inches in crude suggestion of coconut-leaf basketry.

P 2491.
Fiji.
Plate X, 14.

Shaft: Length, 45 inches; circumference, haft 7 inches, butt 8 inches; ends, oval section, at haft major axis 2.25 inches and minor 2 inches, end of haft has carefully cut depression 0.12 inch deep surrounded by rim 0.12 inch thick, butt domed.

Ornament: On grip of 8.5 inches a panel of longitudinal band-and-zigzag finished at outer end by strap of same, unfinished next shaft.

P 2488.
Fiji.
Clark-Oldman.

Shaft: Length, 49 inches; circumference, haft 5.5 inches, butt 7 inches; ends, butt domed, haft shallow circular depression 1 inch diameter, surrounded by incised design in 3 parts separated by radial incisions. Each unit of design consists of 3 concentric arcs closed at each end by radial line, outside closed design an additional concentric arc; depth and position of depressed circle suggests applied ornament as in P 3147.

P 2490. Fiji. Clark-Oldman. Plate XIII, 46.

Ornament: Grip covered with a service of 3-part sennit alternately brown and black.

Shaft: Length, 40.5 inches; circumference, haft 7.5 inches, tapering to 6.5 inches at 4 inches, butt 8.5 inches; ends, haft lightly cupped, butt lightly domed.

P 2489. Fiji. Clark-Oldman.

Ornament: Grip covered with ties of pandanus leaf.

Shaft: Length, 45 inches; circumference, haft 5 inches, flaring to 6.25 inches, butt 7 inches; ends, haft cupped, butt lightly domed.

P 3186. Fiji? W. H. Miller gift.

Ornament: None.

Shaft: Length, 42.5 inches; circumference, haft 5.25 inches, flaring to 7 inches, butt 10 inches; ends, haft lightly cupped, butt highly domed.

P 3143. Tonga.

Ornament: Slight radial incisions on flange; surface strongly marked by traces of applied design.

Shaft: Length, 27 inches; circumference, haft 5 inches, butt 6 inches; ends, haft lightly domed with lug inverted cone 0.25 inch high unperforated, butt highly domed.

Ornament: 3 straps 1 inch wide at 7, 16, and 24.5 inches of same type as P 3100 *a*, except 4 panels left blank in center of design at equal intervals; 3 straps at 3, 12, and 21 inches consisting of narrow band slightly incised carrying design of 3 triangular notches set in form of triangle.

P 3100 b. Fiji. Plate XI, 31.

Shaft: Length, 31 inches; circumference, haft 4 inches, butt 5 inches; ends, haft slightly domed with pentagonal narrow pierced lug, butt domed.

Ornament: Strap 1 inch wide at haft, 0.5 inch wide at 6.5 inches, 1 inch wide at 13, 19, and 24.5 inches and at butt; pattern double diamond with band and notched border, notches filled with chunam; band at haft 2 zigzag straps inclosing strap of longitudinal lines interrupted by 3 panels left blank. Lug 0.5 inch wide, 0.25 inch thick, 0.5 inch high, irregularly 5-sided. Some natural imperfections left in wood.

P 3100 a. Fiji. Cf. Krämer, Samoa, band II, bild. 74 h, Povai. Plates XI, 26; XII, 41.

Shaft: Length, 39 inches; circumference, haft 4 inches, butt 5 inches; ends, cut square, in haft inlaid star of 11 points of cachalot ivory.

Ornament: Longitudinal band-and-zigzag, degenerating in many places to series of parallel lines instead of zigzag; marked off in panels by transverse twin straps band-and-zigzag at 5, 9, 18, 25, 30, and 35 inches, except that band at 5 inches is plain zigzag without band; panels 3 and 4 marked by sinistral spiral of plain zigzag making 7½ turns.

P 3147. Fiji. Oldman.

Shaft: Length, 46 inches; circumference, haft 4.5 inches, butt 5.5 inches; ends, haft lightly cupped, butt lightly domed.

3780 c. Fiji.

Ornament: None.

Shaft: Length, 42 inches; circumference, haft 5 inches, butt 6.5 inches; ends, haft square cut, V-perforation, 3-part sennit becket, butt lightly domed. 3780 d. Fiji. Clark-Oldman.

Ornament: Grip of 10 inches longitudinal band-and-zigzag, with straps of same at each end.

Shaft: Length, 41.5 inches; circumference, haft 3.75 inches, butt 6.25 inches; ends, haft cut square, diagonal perforation, butt cut square. 3780 e. Fiji. Clark-Oldman.

Ornament: Transverse straps of zigzag at intervals of 2.5 and 3 inches, spiral zigzag in panel 7, coconut-leaf design in panel 12, coarse mat design in second panel from butt.

Shaft: Length, 43.75 inches; circumference, haft 5.25 inches, butt 6.75 inches; ends, haft cut square, butt slightly cupped.

Ornament: Entirely band-and-zigzag; grip of 9.5 inches longitudinal stripes, of which one is zigzag without band, one band without zigzag; alternating panels of longitudinal and transverse elements. P 2493. Fiji. Clark-Oldman.

Shaft: Length, 33 inches; circumference, haft 5 inches tapering to 6 inches, butt 6.5 inches; ends, haft lightly domed, butt highly domed. 3780. Fiji. James Kingsbury.

Ornament: Grip, 5.25 inches coarse band-and-zigzag longitudinal and transverse.

Shaft: Length, 46 inches; circumference, haft 5 inches, butt 5.25 inches; ends, haft lightly domed, butt lightly domed. 3780 a. Fiji. Rust.

Ornament: Grip, 9.25 inches longitudinal band-and-zigzag, ending in strap of same; at haft end 1.25 inches service of sennitt.

ROOTSTOCK TYPE.

Plate II, *b*, *c*. Provenience: Fiji, Tonga.

The same simplicity of interpretation of the source as characterizes the billet clubs is manifest on inspection of the 16 pieces here grouped. In the former class we find the convenient branch reduced to a seemly shape. Here we have the convenient sapling wrested from the soil when need of assault arises. The humus of these islands of recent vulcanism is found most substantially in depressions of the rock and is frequently mixed with rock fragments. The growing sapling throws out its roots in every direction immediately below the surface and thus secures immediate support and sustenance, while the tap-root is pushing downward through the humus-bed and possibly into interstices of the underlying rock-stratum. Conditioned by the same factor of terrain, certain trees spread at the surface of the ground into flanges around the stem and at maturity are surrounded by radiant buttresses many feet in extent around the base—enormous natural planks. This tendency is manifest early in the growth of the tree. These two forms are present in these clubs. Plate V 4 exhibits the type of immediate root-growth, 5 and 6 the flanges of the stem. In 4 the roots have been trimmed so as more effectively to add to the weapon value of the

club, and even the finger-thick rootlets shown in the picture are quite as effective as the larger roots, for the density of the wood of the *Casuarina* is extreme. In the same plate, figure 3 exhibits somewhat more of the perception of the possibility of utilizing the natural form of the rootstock in the shaping of a head. In the specimens we see the recognition of the tap-root as distinctly a part of the design, as also in figures 5 and 6. In figure 2, however, the tap-root motive has disappeared entirely; despite this loss it is most clear that the domed head with its regularly cut bosses is a conventionalizing of the treatment of the head which meets the eye in figure 3. The club illustrated in figure 1 is grouped here for convenience, and a recension of a greater number of pieces in other museum possession may suggest a new

TABLE 6.

Length over all (inches).	Piece No.	Length over all (inches).	Piece No.
38.5	2483	43	2481, 3783, 2480, 2479
40.5	3782 *a*	43.75	3782
41	2485	44.5	3782 *c*
41.5	3782 *b*, 3100	45	1974, 3303 *a*
42.25	3175, 2482	46	2484

source. In figure 2 there is a dome somewhat more than hemispherical, studded with bosses regularly spaced, the dome rather sharply marked off from the swelling of the shaft by a plane space with a little suggestion of guttering. In figure 1 is found a plain dome considerably less than a hemisphere; the single row of extremely formal bosses is not upon the dome at all, but rather on the swelling of the shaft; the interspaces between the bosses show no suggestion of sharp demarcation between shaft swelling and head dome. Noting these diversities, this piece is admitted to the classification only temporarily.

The record of the measurements of these pieces, beginning with the length over all, is found in table 6.

In comparison of the similar measurements of the billet type of club a slight adjustment is needed. Among the billets are 6 pieces less than 37 inches long. The rootstocks exhibit none of the short clubs; therefore we compare with the longer billets, 17 in number, and this is sufficiently close to the 16 pieces of this group to serve as a comparison base. Between the lengths of 38.5 and 42.25 inches are 7 rootstocks and 9 billets; between the lengths of 43 and 46 inches the record is exactly reversed—9 rootstocks and 7 billets. This difference may not be significant, yet is worthy of record.

The circumference of the shaft, the first measurements being taken at the end of the haft, is recorded in table 7.

This set of measurements is essentially comparable throughout the clubs of whatever type. We shall therefore postpone its consideration to the later period, when we can discuss it generally upon the basis of data derived from the whole collection.

The next measurements deal with the circumference of the shaft at the point where the head-mass has become distinct. This position is

TABLE 7.

Girth of shaft (inches).	Piece No.	Girth of shaft (inches).	Piece No.
3.5	3303 *a*	5.25	2485, 3782 *a*
4.5	3175, 2483	5.5	3100, 3782, 2484
4.75	2481, 3783, 3782 *c*	5.75	2479
5	2480, 3782 *b*, 2482	6	1974

not definitely fixed in the structure of the weapon; therefore there may be variety of opinion as to the exact spot at which the measurement should be taken; accordingly the results lack positive value.

These measurements are not properly comparable with those of table 4, for a new factor has here been introduced. In the billets the center of gravity affects the shape of the club, which in that case is all shaft. Here the center of gravity is adjusted to a composite of shaft

TABLE 8.

Girth of shaft (inches)	Piece No.	Girth of shaft (inches)	Piece No.
5.75	3303 *a*	7.5	2481
6.25	3783	7.75	2485
6.5	3782 *b*, 2482, 3782 *a*	8	2480, 2483, 2479, 2484
7	3175, 3782 *c*, 3782	8.5	1974

and head. Accordingly, the measurements do not mean the same thing as in the billets; yet a comparison is profitable as fixing the popularity of certain shapes of club-shaft. Making due allowance for the difference in the number of pieces in each group, we find that in the fifth inch the billets are four times as numerous; in the sixth and seventh they are about even; but in the eighth inch the rootstocks are four times as numerous. As before, we tabulate, in table 9, the difference in circumference between the two points of the shaft.

In comparison with the similar statistics of the billets, we find in the rootstocks a trifle under half and in the billets about the same trifle

over half increasing by an amount between 1 and 2 inches; between 2 and 4 inches lie five-eighths of the rootstocks and a scant fifth of the billets, yet the billets show an increment of from 4 to 5 inches not found at all in the rootstocks.

TABLE 9.

Girth difference (inches)	Piece No.	Girth difference (inches)	Piece No.
1.25	3782 *a*	2.5	3175, 1974, 2485, 2484
1.5	3783, 3782 *b*, 3100, 2482, 3782	2.75	2481
2.25	3782 *c*, 3303 *a*, 2479	3.25	2483

The measurements of the length of the head are affected by the same factor of uncertainty as noted in the last array of figures. Such as they are, they are presented in table 10.

TABLE 10.

Length of head (inches).	Piece No.	Length of head (inches).	Piece No.
2.25	3175	6	1974, 2479
2.5	3303 *a*	7	2483, 3100, 2482
3	2481, 3783	8	3782 *b*, 3782
4	3782 *c*	9	3782 *a*
5	2480, 2485	14	2484

No significance can attach to these figures; there is in them very little of the human element of design. A sapling which above ground may strike the eye as satisfactory may yield strange results in its root region, which is to become the head of the club, and these subterranean

TABLE 11.

Girth of head (inches).	Piece No.	Girth of head (inches).	Piece No.
7	3175	14	1974
10	3303 *a*	14.5	2483, 2485
11.5	2481,3782*c*,2484	15	2482, 3782 *a*
12	3783	16	3100
12.5	3782	16.5	2479
13	3782 *b*		

features are invisible. There is the utmost diversity in the measurements of the heads of these clubs, because they rest upon the irregularities of nature, and the most that man can do is to trim off the roots

in a rough fashion. This qualifies the measurements of the circumference of the head, as shown in table 11.

All but three pieces (3175, 3783, and 2481) exhibit in varying degrees the persistence of the descending tap-root already animadverted upon. In every case it is dealt with independently of the treatment of the head; its rootlets are cut off flush with the surface and are not discernible, except upon minute examination of the grain; the surface is polished; from the raw material it is shaped into a smooth cylinder or a cone. Figure 4 in Plate V shows the least trace of art; figure 3 represents the highest development of the treatment of this element. It has not seemed advisable to discuss the length of these end-pieces, but the shape of the end may be noted: domed, 3782 *c*, 1974, 2483, 2485, 2479; cylinder with end cut square, 3100; conical, 2480.

The haft in this type is characteristically unflanged and cut square, except that 2479 is domed; 2484 has a slightly domed cap; and 3175 (in this as in most details only temporarily associated with the type) ends in a flat knob. None of these pieces has perforation, a fact which is conditioned by the shape and size of the club and equally by the domestic architecture of Fiji and Tonga, from which the type derives. Any one of these clubs can be stood up in a corner, and the houses of these two archipelagoes differ from those of Samoa in having side-walls and resultant corners. Neither has any of them a trace of the lug, and for the same reason; it is not necessary to suspend such a club when a corner is within easy reach.

Length, 42.25 inches, of which head is 2.25 inches.

Shaft: Circumference of haft, 4.5 inches; of flat knob, 4.75 inches; at head 7 inches. The plane surfaces of shaft alternating with the bosses of the head perceptible for 12 inches up shaft.

P 3175. Tonga. Oldman. Plates V, 1; XV, 93, 94, 95, 97.

Head: Conical, with height of 2 inches, surrounded by 6 bosses 0.25 inch high, of triangular form, 1 inch on side next cone, from which side to opposite apex 1.25 inches; edges and apices rounded. Each boss carries inlay of cachalot ivory as follows: (1) figure of eight 0.25 inch high; (2) octopus, 0.75 inch high, pointing toward head; (3) triangle, 0.87 inch wide and 0.24 inch high toward head; (4) octopus, 0.67 inch high toward shaft; (5) triangle, same dimensions as (3) toward shaft; (6) octopus, as (4) toward head.

Ornament: Grip, 12.25 inches longitudinal band-and-zigzag and basketry interrupted by broad sinistral spiral band-and-zigzag making 3½ revolutions.

Length, 43 inches, of which head is 3 inches.

Head domed; circular knobs 0.12 inch high, slightly graded in size from shaft downward, in four tiers, alternating 9 in three tiers and 6 in fourth; shaft molded to head with shallow gutter of 0.12 inch.

P 2481. Fiji. Clark-Oldman.

Haft: Circumference, 4.75 inches; at head, 7.5 inches.

Head: Circumference, 11.5 inches.

Ornament: Grip, 8 inches longitudinal band-and-zigzag.

Length, 43 inches, of which head is 3 inches.

Head: Domed; covered with flat knobs, mostly circular, 0.5 inch diameter, 0.12 inch thick; 8 pits occupy place of bosses which appear to have been broken off in use; three of the pits occupied by plugs of cachalot ivory, one by human tooth, four empty. 3784 a. Fiji. Pepper-Voy.

Shaft: Circumference at haft, 4.75 inches; at head, 6.25 inches, flanging head with shallow gutter 0.25 inch. Plates II, c; V, 2.

Head: Circumference, 12 inches.

Ornament: End of haft quartered in panels of radiant lines, shaft to head, with the exception of 2 panels left blank, covered with longitudinal and transverse band-and-zigzag and basketry; 2 ties of screw-palm leaf.

Length, 44.5 inches, of which head is 4 inches.

Head: Circumference, 11.5 inches; end highly domed; rootlets slightly domed; inlay of ivory at end of head; 13 inlays of cachalot ivory, of which 10 show marks of great age; 1 root of human tooth associated with ivory in the same hole; 4 vacant sockets designed for inlay; 1 filled with plug of wood. 3782 c. Fiji. Pepper-Voy.

Shaft: Circumference of haft, 4.75 inches, at head 7 inches; on end of haft inlay of cachalot ivory.

Ornament: Grip, 8.5 inches, with 3 parcelings of sennit; stains of sennit service through rest of shaft; on swelling of head and root portion, 3 lines of transverse scoring.

Length, 43 inches, of which head is 5 inches.

Head: Circumference, 14 inches; rootlets cut square across with edges rounded; end of head conical.

Shaft: Circumference of haft, 5 inches; at head 8 inches. P 2480. Fiji.

Ornament: Grip, 12 inches longitudinal band-and-zigzag, with median strap of same; one side of head much charred. Clark-Oldman.

Length, 45 inches, of which head is 6 inches.

Head: Circumference, 14 inches; end domed; ends of rootlets carved in high degree, without sharp edges.

Shaft: Circumference at haft, 6 inches; at head, 8.5 inches. P 1974. Fiji.

Ornament: Grip, 8.75 inches longitudinal band-and-zigzag, divided by straps of same at 2.5 and 6.5 inches; a final band slightly indicated. Huston collector.

Length, 45 inches, of which head is 2.5 inches.

Head: Circumference, 10 inches.

Shaft: Circumference at haft, 3.5 inches; at head, 5.75 inches. P 3303 a. Fiji.

Ornament: Grip, 9.25 inches longitudinal band-and-zigzag, with initial, median, and terminal straps of same; from terminal strap on opposite faces of shaft 2 loops of pecked triangular ornament extend for 1 inch.

Length, 38.5 inches, of which head is 7 inches.

Head: Circumference, 14 inches; end domed; rootlets cut square across. P 2483. Fiji.

Shaft: Circumference at haft, 4.5 inches; at head, 8 inches. Clark-Oldman.

Ornament: Grip, 10.5 inches service of sennit set on bast foundation, with 1-inch sennit parceling at each end.

Length, 41 inches, of which head is 5 inches.

Head: Circumference, 14.5 inches; rootlets cut square across; end domed.

Shaft: Circumference at haft, 5.25 inches; at head, 7.75 inches.

Ornament: Grip, 10 inches, with service of sennit on bedding of bast and longitudinal interlacing of 6 parts of sennit rounding in loop near end of haft and traces of similar loop next shaft; next head, 2 twined rings of wire-like rootlets twined in opposite directions.

P 2485.
Fiji.
Clark-Oldman.
Plate VII c.

Length, 41.5 inches, of which head is 8 inches.

Head: Circumference, 13 inches; rootlets cut square across.

Shaft: Circumference at haft, 5 inches; at head, 6.5 inches.

Ornament: Grip, 11.5 inches, wrapped with service of sennit, finished top and bottom with parceling of same 1 inch long; double strap of glass beads threaded on coir fiber near head. (Compare frontispiece, Seemann's "Mission to Viti.")

3782 b.
Fiji.
Pepper-Voy.
Plate II b, V, 4.

Length, 43 inches, of which head is 6 inches.

Head: Circumference 16.5 inches; 10 flanges of considerable regularity, with rounded and smoothed edges; end lightly domed.

Shaft: Domed; circumference at haft, 5.75 inches; at head, 8 inches.

Ornament: Grip, 8 inches longitudinal band-and-zigzag; traces of sennit strap 1 inch wide next head.

P 2479.
Fiji.
Clark-Oldman.
Plate V, 6.

Length, 41.5 inches, of which head is 7 inches.

Head: Circumference, 16 inches; flanges irregular, considerably rounded; end 2 inches high, 2 inches wide, flat.

Shaft: Circumference at haft, 5.5 inches; next head, 7 inches; flattened planes near head alternating with flanges of head.

Ornament: Grip, 10.5 inches longitudinal band-and-zigzag; strap of same at end and middle; shaft formerly covered with sennit service; natural ring of bast without seam just below grip.

P 3100.
Fiji.
Plate V, 5.

Length, 42.25 inches, of which head is 7 inches.

Head: Circumference, 15 inches; flanged, with rounded edges.

Shaft: Circumference at haft, 5 inches; at head, 6.5 inches; flattened planes near head alternating with flanges.

Ornament: 1 inch blank at end of haft, showing stains of sennit service; grip, 7.5 inches longitudinal band-and-zigzag, with strap of same; sennit parceling 1.25 inches; remainder of shaft covered with service of black and yellow sennit ending next head with 4 ties of pandanus leaf applied on bed of Turkey-red calico.

P 2482.
Fiji.

Length, 40.5 inches, of which head is 9 inches.

Head: Circumference, 15 inches; narrow flanges with slight rounding; at distal end of flanges small rootlets sharpened to a point.

Shaft: Circumference at haft, 5.25 inches; at head, 6.5 inches; next head plane faces merging in roundness of shaft within 3 inches.

Ornament: Grip, 8.5 inches single and double longitudinal band-and-zigzag; strap of band-and-zigzag; wrapping of sennit 1.5 inches next end; ornament ends irregularly and unfinished under wrapping.

3782 a.
Fiji.
Pepper-Voy.

Length, 43.75 inches, of which head is 8 inches.
Head: Roots worked in flanges; edges cut square. 3782. Fiji.
Shaft: Circumference at haft, 5.5 inches, at head, 7 inches. Pepper-Voy.
Ornament: Wrapping of sennit, 2 inches; grip, 8.75 inches longitudinal band-and-zigzag, ending in strap of same; remainder of shaft parceling of black and yellow sennit for 24 inches, ending in finish of double strap of sennit in square weaving; head formerly covered with chunam, abundant traces of which remain in hollows.

Length, 46 inches, of which head is 14 inches.
Head: Rootlets left in natural condition. P 2484. Fiji.
Shaft: Circumference at haft, 5.5 inches; next head, 8 inches; end of haft slightly domed cap. Clark-Oldman.
Ornament: Grip, 9.75 inches; 2 panels longitudinal band-and-zigzag separated by single band of zigzag.

MISSILE CLUBS.

Plate I, *a*, *b*, *c*; VIII. Provenience: Fiji.

For reasons of the carpentry of the clubwright it has seemed fit to introduce at this point the characteristic missile clubs of Fiji. In a much deeper examination of the source-origin of this club we shall engage in problems of far greater complexity. But at this point we are attracted solely by the resemblance of at least one type within this group to a type frequent among the rootstocks, and by the evidence, both from the illustrations and even more from the observation of the club-maker at work in Fiji, that all of these missile clubs are wrought from the sapling and the superior roots quite as much as are the formidable weapons which we have just passed in review. While the type is distinctly Fijian, we note its occurrence elsewhere. Krämer illustrates (210 *q*) a missile club which appears to correspond exactly with the ball-head of Plate V, 12, a piece now in Stuttgart accredited to Samoa; on the same plate, figure *p*, he presents from the same museum and of the same provenience a short club with a shaft rather thicker than those of the collection here examined, with a ball-head marked off in small knobs by scorings at right angles, with the final knob of Plate V, 7, 8, 9, 10, rather more of the type exhibited in the rootstock type in Plate V. It is quite evident that this club could not be used after the Fijian method about to be set forth, for the end of the haft is too large to pierce the tissues. In our vocabulary material we find that the Tongan has *kolo* as the name of a club without further definition, and the Samoan variant *'olo* is defined as a short knobbed club carried by young men, a description which may be taken to apply to Krämer's 210 *p*.

In the 17 pieces here assembled we may readily discern three positively distinct types. Of these, that which we may designate the ball type, 5 pieces, we have the head a more or less regular ball, the shaft of equal diameter throughout, neither flanging at the haft nor swelling to

the head; at the juncture of shaft and head a circular depression like a saucer. Structurally this resembles somewhat distinctly the head treatment of Plate V, 2. Of those in which the head is developed by the utilization of the flanges of the stem as in Plate V, 5 and 6, 6 pieces, and which we may designate the wheel type, we have a shaft which may or which may not flange at the haft, but which in every case swells into the head, and at the distal end of the head we find a double element of a carved ring which may or which may not have a shallow depression between it and the second element of a more or less carefully worked, highly domed knob. The third type is distinguished by its carefully patterned head (Plate V, 7 and 9). In this type the shaft always swells to the head, and the ring and knob at the head are quite as in the wheel type. The marking of the head suggests nothing quite so much as an application of basketry of the pandanus leaf, such as may be seen in Plate V, 2, as a simple tie about the stem. In two pieces (Plate V, 9) the flat surfaces of the pattern around the greatest circumference are distinguished by inner concentric lines, producing the impression of a double element, of which the lower was allowed to appear through slits in the upper.

No matter what the type of this club may be, the Fijian *ula*, that affects only its finish, the art of throwing is the same for all and an art most difficult to acquire. It corresponds generally with the knife-throwing of the Sicilian and of the mountaineer of Kentucky. In each case the heavy end of the projectile—the handle of the knife or the head of the club—goes forward toward the mark. At a certain distance from the mark the thrown weapon capsizes in a vertical sense and the blow is delivered by the lighter end—the point of the knife or the haft end of the *ula*. The haft end of the club is not sharpened to a point; examination of the collated measurements will show it to be of about the thickness of a man's finger or thumb, but such is its striking force when thrown by the well-muscled Fijian that it will with no difficulty transfix the softer tissues of the trunk, despite the protection of the ribs. These *ula* are thrown with precision to a distance of 100 feet. In one case I saw a pig pierced through the flank until the flight of the club was brought up by the head and the haft came clear through on the other side; this at a distance of 65 feet.

The club is held peculiarly, and apparently experience has evolved a particular grasp and release in order to govern the weapon in its flight. The haft is held firmly against the ball of the thumb, and it is probably for this reason that no attempt is made to secure greater piercing power by fining the haft to a point. The shaft lies upon the half-flexed middle finger; the index finger slightly bent overlies it; the tip of the thumb is applied to keep the shaft in this position; a peculiar rhythm of the release of the pressure of the three fingers, quite impossible to describe, seems to be responsible for the distinctive peculiarity

of the flight. Probably the position of the end of the haft, perhaps some feature of its shape at the point of apposition to the ball of the thumb, may serve to delay the beginning of the flight and add to the effect of the rhythmic finger-release. In the 17 pieces of this collection but one has a domed end; only 5 are cut square across; 11 are finished at the end with a distinct cupping of the haft, which may be intended to form a pneumatic joint at the point of apposition, an opinion which finds support in the additional fact that it is usual to moisten the ball of the thumb by the tongue before delivering a flight.

TABLE 12.

Length (inches).	Piece No.	Length (inches).	Piece No.
15	2467, 3785 *a*	16.75	3786, 2466, 3188
15.25	2462	17	3784, 2465, 2460, 2463
16	2468, 2469, 3785, 3784 *a*	17.25	3188 *a*
16.5	2461 *a*, 2461		

The grimness of savage humor is preserved for us in connection with this weapon; it may serve to confirm the opinion of those who despise the pun. The Fijian *vakarimbamalamala*, meaning literally to cause chips to fly off, is used to describe a play upon ambiguous words, as the word *ulaula*, signifying either to thatch a house or throw short clubs (*ula*) at one another. The Bau people sometimes order (we are quoting from the missionary Hazlewood's Fijian Dictionary, compiled

TABLE 13.

Length of shaft (inches).	Piece No.	Length of shaft (inches).	Piece No.
12	2467, 3785 *a*, 3785	13	2469, 3784, 2460, 2463, 3784*a*, 2466, 2461
12.5	2468		
12.75	2462	13.5	3786, 2461 *a*
		14	2465, 3188 *a*, 3188

at a time when the present tense was accurate) the Tailevu people to come to Bau to *ulaula;* the people come expecting to thatch a house and find themselves pelted with clubs.

The measurements of these pieces are presented in 5 tables, beginning with the length over all in table 12.

For such significance as they may possess, we sum these measurements for each inch of length and its fractions: 15 inches, 3 pieces; 16 inches, 9 pieces; 17 inches, 5 pieces.

The length of the shaft to its point of articulation with the head, a measurement distinctly obtainable in the ball type but subject to diversity in the other two types, is presented in table 13.

The circumference of the head is recorded in table 14.

Bearing in mind the highly artful manner of delivering this club through a hundred feet of air to a precise lodgment upon the mark, it is clear that there must be some intimate relation existing between these several measurements of length over all, shaft length, and head circumference. But the tape-line can not tell all the tale. Before we can analyze the flight it would be needful to introduce the factor of

TABLE 14.

Girth of head (inches).	Piece No.	Girth of head (inches).	Piece No.
9.5	2461 *a*	13.5	3784
10	2467, 2466	14	2461
11	3785 *a*, 2465	14.25	2463
11.25	2469	14.5	3786
12	3785, 2462	15	3188 *a*
12.5	2468, 3188	16.25	2460
13	3784 *a*		

total weight, the distribution of the weight as between head and shaft, and the factors of air-resistance conditioned by the volume and form of the head. In the foregoing tables we note that the length over all may vary within 2.25 inches, the shaft length within 2 inches, the head circumference within 9 inches; this record is unmistakably evidential that the as yet undetermined factors contribute very largely to the

TABLE 15.

Girth of haft (inches).	Piece No.	Girth of haft (inches).	Piece No.
2.75	2467, 2465, 2462, 2461 *a*	3.25	2468, 3786, 3188
3	2469, 3785 *a*, 3785, 2463, 2466	3.5	2460, 3784 *a*
3.12	2461	3.75	3784, 3188 *a*

art of throwing this missile club. The circumference of the haft is recorded in table 15.

The end of the haft is cupped in 2468, 2467, 3785 *a*, 3785, 3784, 2460, 2463, 3784 *a*, 3188 *a*, 2461, 3188; domed in 2461 *a*; cut square in the remaining pieces.

Perforation is diagonal in 2468, 3785, 3784, 2460, 2463, 2466; and of these, broken remains of a former perforation are found in 2463, and in 2466 at least three diagonals, all broken through the septum. In 2461 *a* we find an unusual perforation, a hole drilled athwart the shaft 1 inch from the end and probably the result of modern influence. We have already noted the elegance of the V-perforation in the center of

the heads of certain larger clubs; in 3785 *a* we encounter a different V-perforation, an inverted V, in which the point is on the head of the club near the edge and the two limbs appear upon the shaft near the head. Particular interest attaches to the imperfect inverted V in 3786, for it presents evidence as to the manner in which this perforation is made—one diagonal is completed, the other has been started from the side of the shaft, but not yet fully pierced.

Apparently the ring and knob with which the heads of the wheel and patterned types are finished persists as mere ornament, but it will complete the record by listing the circumference. These measurements are probably not comparable *inter se;* they are to be studied in relation to the total circumference of the head, even if for no higher purpose than the study of proportion which satisfies the art sense of the club-wright.

TABLE 16.

Piece No.	Girth of head (inches).	Girth of ring (inches).	Piece No.	Girth of head (inches).	Girth of ring (inches).
3784	13.5	6.5	2462	12	6
3786	14.5	7.5	2461 *a*	9.5	6.75
2465	11	4	2466	10	6
2460	16.25	7	3188 *a*	15	7.5
2463	14.25	7.5	2461	14	9
3784 *a*	13	6.5	3188	12.5	6.75

Length, 16 inches, of which shaft is 12.5 inches.
Head: Ball, circumference 12.5 inches; saucered at shaft; surface irregular, owing to defects in wood.
Haft: 3.25 inches circumference; cupped; remains of transverse perforation. **P 2468. Fiji. Clark-Oldman.**
Ornament: On grip, 3.25 inches longitudinal band-and-zigzag. **Plate I c, V, 12.**

Length, 15 inches, of which shaft is 12 inches.
Head: Ball, circumference 10 inches; saucered at shaft; irregular surface, partly through defects in wood and partly through use. **P 2467. Fiji. Clark-Oldman.**
Haft: Circumference, 2.75 inches; cupped.
Ornament: Grip, 5 inches longitudinal band-and-zigzag.

Length, 16 inches, of which shaft is 13 inches. **P 2469.**
Head: Ball, circumference 11.25 inches; saucered at shaft. **Fiji**
Haft: Circumference, 3 inches. **Clark-Oldman.**
Ornament: Turk's head of 8 parts of sennit applied at middle of haft.

Length, 15 inches, of which shaft is 12 inches.
Head: Ball, circumference 11 inches; finish interrupted by imperfections of the wood; saucered at shaft. **3785 a. Fiji.**
Haft: Circumference, 3 inches; end cupped; perforated transversely from one hole at end to two on side.
Ornament: Grip, 5.25 inches longitudinal band-and-zigzag.

Length, 16 inches, of which shaft is 12 inches.
Head: Ball, circumference 12 inches; smooth finish; saucered at shaft. 3785. Fiji.
Haft: Circumference, 3 inches; cupped; transverse perforation.
Ornament: Grip, 5.75 inches longitudinal band-and-zigzag.

Length, 17 inches, of which shaft is 13 inches.
Head: Wheel of 7 spokes, 13.5 inches circumference; circumference of ring and knob at end, 6.5 inches. 3784. Fiji. Voy. Plate V, 8.
Haft: Circumference, 3.75 inches flanging to 4 inches; end slightly depressed; transverse perforation.
Ornament: Grip, 5.75 inches longitudinal band-and-zizag; one human molar inlaid in outer end of one spoke; small human tooth inlaid in final knob.

Length: Haft, 13.5 inches; head, 2.5 inches; ring and knob, 0.75 inch.
Head: Circumference, 14.5 inches; diameter of ring, 2.5 inches; diameter of knob, 1.75 inches.
Haft: Circumference, 3.25 inches, flanging to 4.5 inches; at head, 5.5 inches; end pierced transversely, and there is the beginning of a second lateral orifice. 3786. Fiji. Pepper-Voy.
Ornament: Grip, 5.75 inches longitudinal band-and-zigzag, with single strap of the same at end and two straps of the same next shaft; shaft above grip treated in dextral spiral of coarse dots making three turns to near head, then 1 inch longitudinally onward, thence returning in sinistral spiral to near grip; lobes of head show traces top and bottom of treatment as in P 3188 *a*.

Length, 17 inches, of which shaft is 14 inches.
Head: Wheel of 6 spokes; circumference, 11 inches; circumference of knob and ring, 4 inches.
Haft: Circumference, 2.75 inches; section circular for 10 inches, at which point it becomes hexagonal to a perimeter at head of 4.5 inches, the flat hexagonal surfaces alternating with spokes of head. P 2465. Fiji (?). Clark-Oldman. Plate VIII, e.
Original MSS. label: "Club, New Guinea, S. H. J., 1890."

Length, 17 inches, of which shaft is 13 inches.
Head: Wheel of 12 spokes; circumference, 16.25 inches; circumference of ring and knob, 7 inches.
Haft: Circumference, 3.5 inches; end deeply cupped; transverse perforation. P 2460. Fiji. Clark-Oldman.
Ornament: Grip, 6 inches longitudinal band-and-zigzag.

Length, 17 inches, of which shaft is 13 inches.
Head: Wheel of 10 spokes; circumference, 14.25 inches; circumference of ring and knob, 7.5 inches.
Haft: Circumference, 3 inches, flanging to 3.5 inches; end cupped; two transverse perforations, of which one is broken through. P 2463. Fiji. Clark-Oldman. Plate I, a; V, 10.
Ornament: Grip, 5.5 inches band-and-zigzag, poorly executed; two longitudinal lines of punctuation, which encircle shaft near head.

Length, 16 inches, of which shaft is 13 inches.
Head: Wheel of 9 spokes; circumference, 13 inches; circumference of ring and knob, 6.5 inches; saucered.
Haft: Circumference, 3.5 inches; deeply cupped. 3784 a. Fiji. Voy.
Ornament: Grip, 6 inches; two panels of strongly extended band-and-zigzag; shaft punctuate next head.

Length: Haft, 12.75 inches; head, 2.5 inches; ring and knob, 1 inch.
Head: Circumference, 12 inches; diameter of ring, 2 inches, of knob, 0.75 inch; subdivision of flanges as in P 3188 *a*.
Haft: Circumference, 2.75 inches, flanging to 3.5 inches; at head, 5.5 inches, swelling to plate with diameter of 2.75 inches.
Ornament: None.
Club undoubtedly modern, as shown by marks of steel blade.

P 2462.
Fiji.
Clark-Oldman.

Length: Haft, 13.5 inches; head, 2 inches; ring and knob, 1 inch.
Head: Circumference, 9.5 inches; diameter of ring, 2.25 inches, of knob 2 inches.
Haft: Circumference, 2.75 inches; at head, 4 inches; swells to plate next head with diameter of 2.25 inches; end slightly domed; pierced diametrically 1 inch from end, probably modern addition.
Ornament: Grip, 5.5 inches longitudinal band-and-zigzag, ending in strap of the same in 3 units.

P 2461 a.
Fiji.
Clark-Oldman.

Length: Haft, 13 inches; head, 2.5 inches; ring and knob, 1.25 inches.
Head: Section roughly oval; circumference, 10 inches; diameter of ring, 2 inches, of knob 1.75 inches.
Haft: Circumference, 3 inches, flanging to 3.5 inches, at head 3.5 inches; cupped; three transverse perforations, each broken through.
Ornament: Grip, 5.7 inches longitudinal band-and-zigzag, ending one strap of same.

P 2466.
Fiji.
Clark-Oldman.

Length: Haft, 14 inches; head, 2.25 inches; ring and knob, 1 inch.
Head: Circumference, 15 inches; diameter of ring, 2.5 inches, of knob, 2 inches.
Haft: Circumference, 3.75 inches, flanging to 4 inches, at head 5.25 inches, swelling into first unit of head; cupped.
Ornament: Grip, 6 inches longitudinal band-and-zigzag, ending in strap of double-line pecked ornament; lobes of head scored by two longitudinal lines into triple segments, of similar treatment with P 2462.
Very handsome specimen.

P 3188 a.
Fiji.
Plate I, b; VIII, c.

Length: Haft, 13 inches; head, 2.25 inches; ring and knob, 1.25 inches.
Head: Circumference, 14 inches; diameter of ring, 3 inches; of knob, 2.5 inches.
Haft: Circumference, 3.12 inches, swelling to head, 5 inches; cupped.
Ornament: Grip, 5 inches longitudinal band-and-zigzag, ending in single strap, shaft above grip punctate with dextral spiral of dots evenly spaced through five turns.

P 2461.
Fiji.
Clark-Oldman.

Length: Haft, 14 inches; head, 1.75 inches; knob, 1 inch.
Head: Circumference, 12.5 inches; diameter of ring, 2.25 inches; of knob, 1.75 inches.
Haft: Swelling to head, circumference 3.25 inches, flanging to 3.5 inches; at head, 5.25 inches; cupped.
Ornament: Grip, 5.25 inches of coarse band-and-zigzag, much worn.

P 3188.
Fiji.
W. H. Miller gift.
Plate V, 7.

PANDANUS TYPE (TOTOKIA).

Plates II, *d;* VI, *d, e, f.* Provenience: Fiji.

Thus far the study has been addressed upon club types for the most part worked out from the sapling and the roots nearest to its base. In the next three types there is a group of clubs marked by a curve more or less sharp. Personal observation confirms in this case the theoretical conclusion toward which inspection of museum specimens must direct one; the timber source of all these clubs is that in which the curve can be found ready to hand, namely, the limb of the tree at the crotch, together with so much of the trunk as may be needed for the head. Accordingly, the angle of the curve is largely conditioned by the habit of growth of the tree. It must be held in mind that the work of the clubwright is no easy task with his poor appliances; he is alert to recognize any assistance which nature may give him, and by taking advantage of every such little help to save himself the rough work of getting out his timber and blocking out his pattern.

Commonly in books upon the Fijian Archipelago and in reports upon museum collections there is applied to this club a misnomer, the pineapple club. There is no reason in the least to imagine a change in the types of clubs since the discovery of the islands; in fact, the very first acquisition from the whalers and adventurers of the South Sea was to place the musket in the hands of the Fijian, and with the coming of fire-arms the day of the wooden arm went into its twilight. This knobbed and spiked club undoubtedly long antedates the voyage of Abel Jansen Tasman, who discovered the archipelago; yet the pineapple is not indigenous to the islands, it owes its introduction to the missionaries no earlier than the latter half of the nineteenth century. The resemblance of the knob to the fruit of the pine is very slight; it is much greater to the dried fruit-cluster of the pandanus, and by the name of that fruit (*mbalawa*) the knob is commonly described by the Fijians. Assimilation to the pineapple would be meaningless to the Fijian, yet he would and did find a pleasing character in its association with the pandanus. In at least three grave-cairns I have found this club buried with the body and accompanied by a tooth of the cachalot (*tambua*) tied about the wrist. Upon the Fijian road to his hereafter in Burotu the soul makes perilous passage through the misty mountains of Na Kauvandra. To win from death to the pleasures of undying life his soul must fight numberless enemies. His pandanus club has also a fighting soul and enables him perchance to overcome the shadowy foe by reason of the *mana* which the pandanus confers. After all this fighting his greatest trial lies at a gorge crossed by a single pendulous liana, over which he must walk while all the spirits of evil gibber and yell to destroy his courage while they shake the cord to prevent his crossing. At the further lip of the gorge stands a pandanus

tree; there is the sympathy of magic between the tree and the carved head of his club; the weapon by reason of that *mana* seeks to fly across the gap to rejoin its parent tree, and if his hand can keep its clutch upon the shaft of the club the soul will follow. At this gorge perilous he throws his *tambua;* if it hit the pandanus the spirits of evil quit their howling and their assaults upon his slender foothold and let him pass onward toward whatever trials may await him on the road to bliss. Parts of this account have been preserved by Calvert and Williams and by Basil Thomson; the more intimate explanation I owe to the careful exposition given me by Ratu Lala in Taviuni, a chief of great position, who was devoted to the knowledge of the past of his people.

The Fijian name of the club, *totokia*, is explicative of the manner of its use, for *tokia* is used to describe the pecking action of a bird. In Fiji the spoils of war were the spoiled warrior. When one's foe went down in battle he became known under the new designation of *mbokola*, together with a rich vocabulary descriptive of his further treatment. Without undertaking the recension of this vocabulary with notes critical and exegetical, it will suffice to say that the immediate value of the *mbokola* when lugged back by his conqueror was entirely in the commissariat service. When the victor's wives set about their task of preparing the *mbokola* so that he might be his own funeral baked meat, they were the objects of the envy of other women whose own heroes had not had the fortune or the courage to replenish the larder. There are conventions to be observed in such matters, not mere victory and the resultant *pièce de résistance*, really of ineffectual resistance, will prove wholly satisfactory. Certain fashions rule with a most rigid force; there are crowns to be broke, but it must be in a certain way, else the jeers of the other women will cause shame to mantle upon the cheeks of the women preparing the body for the oven. The crown must be pierced exactly with the spike of this deadly weapon, but the skull must not otherwhere be split; it calls for extreme nicety in delivering the winning blow to be able to check the impact in the exact moment of success in order that the weight and sharp spikes of the pandanus head may not mar a perfect work.

In this group we find 8 pieces; all are based upon the same general plan. The haft is finished in a slightly domed knob with a bounding edge, except 3183. The spike issues out of the knob from a circular plate molded at its circumference to a bounding ring through a shallow guttered channel, except that in 3182, 3182 *a*, and 2487 this plate lacks the channel and ring, and in 3183 the ring is present but the plate absent. In two cases we find perforation—inverted V in 2487 at the edge of the knob, V-perforation at the summit of the knob in 2252. To this type of club the same remark applies in the matter of suspension as in the case of the rootstocks.

The length measurements of these clubs have been taken on the outer edge of the curve in two records—from the bend as nearly as it may be determined in one direction to the end of the shaft and in the other to the end of the spike. They are recorded in table 17.

TABLE 17.

Piece No.	Length to end of shaft (inches).	Length to end of spike (inches).	Piece No.	Length to end of shaft (inches).	Length to end of spike (inches.)
3787	27	10	3182 *a*	34	8
2487	29	7	3183	36.5	7.5
3182 *b*	31	11	2252	37	10
2486	33	9	3182	39	13

There appears no regularity in the relation of these two parts of the weapon; the head from the bend onward may be as little as one-fifth of the shaft (3183) or as much as one-third (3182).

TABLE 18.

Piece No.	Girth of knob (inches).	Height of spike (inches).	Piece No.	Girth of knob (inches).	Height of spike (inches).
3183	9	2.5	2486	15	3
2487	10	3	2252	15	4
3182 *a*	12	4	3787	18	4.5
3182	12	7.5	3182 *b*	19	4

The head measurements, circumference of the knob, and height of the spike appear in table 18.

It is quite clear that no relation of proportion exists in these two measurements. The tallest spike (3182) is associated with a very moderate knob; the largest knob (3182 *b*) has a spike such as occurs with one of the smallest knobs.

TABLE 19.

Piece No.	Girth at haft (inches).	Girth at bend (inches).	Girth at head (inches).	Piece No.	Girth at haft (inches).	Girth at bend (inches).	Girth at head (inches).
2487	4.25	5.5	5	3183	5	6	6.75
3182 *a*	4.5	5.5	6.5	2252	5.25	6.5	7.5
3182	4.5	6.5	6.5	3787	5.25	7	8
2486	5	6	6	3182 *b*	6	7	8

The circumference of the shaft has been taken at three points, the haft, the bend, and the point of articulation with the head. They are presented in table 19.

The haft measurements are deferred for general consideration of the hand-grip. The increment between haft and bend in this series is stated as follows: 1 inch, 3182 *a*, 2486, 3183, 3182 *b*; 1.25 inches, 2487, 2252; 1.75 inches, 3787; 2 inches, 3182. The increment between bend and head is various; in 2487 there is a decrease of 0.5 inch; in 3182 and 2486 there is no change of dimension; in 3183 the increase is 0.75 inch; an increase of 1 inch appears in 2252, 3787, 3182 *a*, and 3182 *b*; and in the last two pieces the increment from haft to bend and from bend to head is the same.

Length of shaft to bend, 36.5 inches; from bend to end of spike, 7.5 inches. Circumference of haft, 5 inches; at bend 6 inches; at knob 6.75 inches.

Knob: 5 rows of points; circumference 9 inches, spike 2.5 inches, long, bluntly conical, and at base occupying full space normally devoted to plate, which is thus reduced to a mere ring, and at shaft end of knob the points lack the radial edges.

P 3183.
Fiji.
Plate VI, e.

Ornament: Grip, 8 inches, divided midway by single band; element nearest haft longitudinal band-and-zigzag, with one unit double zigzag without band; second element band-and-zigzag, in which the zigzag is loosely extended, one unit of double zigzag without band.

This club is poorly executed and is the only instance in the collection in which the spike is blunt and in which the haft lacks knob at end.

Length of shaft to bend, 27 inches; from bend to end of spike, 10 inches.

Circumference of haft, 5.25 inches; at bend, 7 inches; at head, 8 inches.

3787.
Fiji.
Voy.
Plate VI, f; XI, 24.

Head: 7 rows of points; circumference, 18 inches; spike, 4.5 inches long.

Ornament: None.

Length of shaft to bend, 29 inches; from bend to end of spike, 7 inches.

Circumference of haft, 4.25 inches; at bend, 5.5 inches; at head, 5 inches.

Head: 5 rows of points; circumference, 10 inches; spike, 3 inches long, without molded ring.

P 2487.
Fiji.
Clark-Oldman.

Ornament: Grip, 7.5 inches long, longitudinal band-and-zigzag much extended, ending in small band-and-zigzag strap; from grip to bend of shaft, service of coir sennit.

Haft pierced transversely, one hole on end forking into two on the shaft side.

Length of shaft to bend, 34 inches; from bend to end of spike, 8 inches.

Circumference of haft, 4.5 inches; at bend, 5.5 inches; at head, 6.5 inches.

Head: 6 rows of points; circumference, 12 inches; spike, 4 inches long.

P 3182 a.
Fiji.
Oldman.

Ornament: Partly executed plan of complete decoration.

Grip: 3 band-and-zigzag straps, 1 inch; longitudinal band-and-zigzag, 3 inches; 3 band-and-zigzag straps, 1 inch; longitudinal band-and-zigzag, 3 inches; 3 band-and-zigzag straps, 1 inch. In the longitudinal elements the bands are indicated as double by rude scoring.

Shaft: In 14.75 inches beginning of dextral spiral of zigzag without band making three turns; after spiral double band-and-zigzag strap 0.75 inch; panel 2.5 inches of two band-and-zigzag units, one dextral spiral and longitudi-

nal, the other longitudinal and dextral spiral, separated by unit of basketry; strap of double band-and-zigzag; panel 2.5 inches longitudinal band-and-zigzag; strap 0.75 inch double band-and-zigzag; panel 3.25 inches dextral spiral double band-and-zigzag; strap 0.75 inch double band-and-zigzag; longitudinal band-and-zigzag to head, unfinished at inner side of bend.

Spike: 4 radial band-and-zigzag on plate; 3 straps of same.

Length of shaft to bend, 39 inches; from bend to end of spike, 13 inches.

Circumference of haft, 4.5 inches; at bend, 6.5 inches; at head, 6.5 inches.

Head: 6 rows of points, workmanship poor; circumference, 12 inches; spike, 7.5 inches.

P 3182. Fiji. Oldman. Plate IX, 7.

Ornament: Grip, 11 inches; band-and-zigzag strap at haft; 5-inch unit longitudinal band-and-zigzag with one element of compound dentelle plates pointing toward handle, the first four plates of 3 teeth, the fourth of 4, fifth and sixth of 3, thence onward of 4; 5-inch unit of longitudinal band-and-zigzag in lightly sinistral spiral.

Length of shaft to bend, 37 inches; from bend to end of spike, 10 inches.

Circumference of haft, 5.25 inches; at bend, 6.5 inches; at head, 7.5 inches.

Head: 8 rows of points; circumference, 15 inches; spike, 4 inches; on plate shallow pits one on each side of spike as for inlay, as is present in P 2486.

P 2252. Ysobel. Donaldson. Plate VIII, d; IX, 2, 3.

Ornament: Grip, 9.25 inches, ending in band-and-zigzag strap; 4 double stripes band-and-zigzag, a fifth in which double band-and-zigzag has addition of 1 stripe double zigzag without inner band, and where this tends to produce diamonds the union of points is corrected by thin incised line; alternately 5 stripes of longitudinal extended zigzag.

Perforation on knob, V-type.

Length of shaft to bend, 31 inches; from bend to end of spike, 11 inches.

P 3182 b. Fiji. Oldman. Plate II, d; VI, d.

Circumference of haft, 6 inches; at bend, 7 inches; at head, 8 inches.

Head: 7 rows of points; circumference, 19 inches; spike, 4 inches.

Length of shaft to bend, 33 inches; from bend to end of spike, 9 inches.

Circumference of haft, 5 inches; at bend, 6 inches; at head, 6 inches.

P 2486. Fiji. Clark-Oldman.

Head: 7 rows of points; circumference, 15 inches; spike, 3 inches and splintered at point by uncertain amount; human tooth inlaid on plate.

AXE-BIT TYPE.

Plates II, *e;* IV, 1, 2, 3. Provenience: Fiji.

In the museum are 3 specimens of an excessively rare and most interesting type, one so infrequently met with in museum keeping as to prove that their occurrence in Fiji was rare. In default of the Fijian name, which does not appear of record, and in anticipation of conclusions which I hope to establish, I have chosen to designate this the axe-bit type. In Fiji it was apparently never a littoral type; the only one which I ever saw in its home was among the Kai Colo mountaineers

of Viti Levu near the upper waters of the Sigatoka River, and I have the authority of Ratu Lala for the statement that this form of club was restricted to these mountain folk, the most thoroughly Melanesian of all the inhabitants of the archipelago. As compared with the other clubs it is light, its shaft is oval in section and so small as to be completely encircled by the clutch of fingers; it is crowded with features which appear in no other club. Because of the many complexities which it presents, the detail of measurements has been made very complete. Those measurements which are principally comparable have been amassed in a tabular view (table 20) covering all three specimens in one conspectus.

TABLE 20.

	Piece No. 3362.	Piece No. 3361.	Piece No. 2478.
Shaft:			
Angle with head.....degrees..	20	5	20
Length over all.....inches..	37.5	41	36
Shaft proper.....do...	29	31	28
Circumference, haft.....do...	4	4.75	4.25
At head.....do...	5.25	6	5.5
Flange at head.....do...	6.5	0	6.75
Socket:			
Width:			
At shaft.....do...	3	2.75	2.5
Distal.....do...	4.5	4.5	4.5
Thickness.....do...	2	1.5	2
Blade:			
Width:			
At socket.....do...	3	4	3
At edge.....do...	6	3.5	5.5
Length:			
From paired knobs.....do...	6	2.25	6.75
From socket.....do...	4.75	1.75	4.87
Thickness:			
At edge.....do...	1	.5	.75
At center.....do...	1.5	.75	1.25

We shall have to subject these three pieces to such intensive examination in another relation that it scarcely seems advisable to do more at this point than to supplement this tabular view with the record of each of the specimens.

Shaft: Straight; angle with head 20°; length over all 37.5 inches, of shaft proper 29 inches; oval section; circumference at haft 4 inches, at head 5.25 inches, flanging sharply to 6.5 inches; without ornament.

Socket: 3 inches wide at shaft, 4.5 inches distal; thickness 2 inches at distal knobs; faces uniform; edges unornamented. First unit: 1.5 inches longitudinally to transverse band; at upper side rectangular rib 1.25 inches transverse, 1 inch longitudinal to flange of shaft; in panel thus formed 9 transverse lines; perforation next flange. Central element: palm-leaf ornament 0.75 inch wide at shaft, 1 inch at transverse band. Lower element: shallow depression to transverse band

P 3362. Fiji. Oldman. Plate II, e; IV, 2.

carrying conical knob 0.25 inch high, 0.5-inch base; on lower side this depression merges into rib 0.5 inch wide, 0.37 inch thick, 3 inches long from shaft, transverse band decoration continuing throughout, but not on edge or finish. Second unit: Plain transverse band; strap 1 inch wide from upper edge to sharp angle with lower ridge; 2 elements in band, 0.67 inch basketry, 2 band-and-zigzag; at upper edge grades gently into ridge of same dimensions as lower ridge extending to distal end of socket and in next unit is similarly marked by transverse bands. Third unit: 1.5 inches long; central element 2 inches wide proximal, 1.5 inches distal; right face marked by 3 longitudinal bands of basketry flanked by borders of transverse bands; left face, 2 broader bands of basketry with same border design; from proximal corners of central element rise 2 conical knobs extended longitudinally in ribs 1.5 inches to distal end of socket; ribs without ornament; strongly carved, showing blade in angles.

Blade: 3 inches wide at socket, 6 inches at edge, 5.25 inches at 1 inch from edge, sharply curving into blunt cusps; thickness at edge 1 inch, at thickest point near center 1.5 inches.

Ornament of blade: Right face, well-marked longitudinal band through center, curved lines radiating from same point to cusps and edges; at 2.25 inches from socket transverse band 1 inch each side median line, on which erected diamond from center of socket to center of edge, filled with lines parallel to faces; between outer half of diamond and outer areas of curved lines two triangles of lines parallel with cutting-edge; cutting-edge distinguished on face by border of dentelles and basketry over edge. Left-hand face, same ornament, not quite so well executed.

Shaft: Angle with head 5°; shaft curved; length over all, 41 inches, of shaft proper, 31 inches; oval section; circumference at haft, 4.75 inches, at head 6 inches; not flanging; without ornament.

P 3361.
Fiji.
Oldman.
Plate IV, 3.

Socket: 2.75 inches wide at shaft, 4.5 inches distal; thickness, 1.5 inches at distal knobs; both sides uniform; upper edge punctate, lower plain. Extra unit: 1.5 inches longitudinally, 2.87 inches wide at shaft, flanging to 3.25 inches distal; 6 transverse bands crossed at right angles by 3 longitudinal on either side central rib, forming deeply pitted cells. First unit: 2.25 inches longitudinally; at distal edge rib 1 inch transverse, joining at right angles rib 2.25 inches horizontally toward shaft; in panel thus formed 9 transverse bands, 1 longitudinal; central element reduced to strongly marked rib continuous from shaft to third unit; upper side frequently punctate, lower side not; punctations not correlated with transverse banding; between central rib and longitudinal rib of former element shallow depression of basketry ornament with three punctations similarly situated on both faces; third element, knob 0.5 inch wide at top, 0.75 inch at base, 0.25 inch high. In this club the rib at each edge is less distinctly developed than in P 2478 and P 3362. Second unit: Transverse band of P 3362 here represented by general transverse banding of club, 6 transverse, 2 longitudinal on one side of central rib, 3 on other; 1.37 inches longitudinally. Third unit: 3 inches longitudinally, 4 inches wide toward shaft, marked by irregularly spaced points in which two faces lack correspondence; at upper edge central ornament carried from one face to the other by band 0.5 inch wide; 2 conical knobs of same size as in first unit, faces correlated, all 6 knobs lightly punctate, suggesting boring, not found in other clubs of type; flaring ribs showing blade in angles.

Blade: 4 inches wide at socket, 4 inches at half inch from edge, 3.5 inches at edge; length 2.25 inches from paired knobs, 1.75 inches from socket to edge; thickness at edge 0.5 inch, at socket 0.75 inch; points absent; corners rounded.

Ornament of blade: On median line from socket to edge irregular trapezoidal plain space 1.5 inches long, 1.25 inches wide; reticulation radiating outward and forward from socket as far as points of blade, issuant from trapezoid reticulation parallel to edge of blade; edge marked by 4 deep pits.

Shaft: Straight; angle with head 20°; length over all, 36 inches, of shaft proper, 28 inches; oval section; circumference at haft 4.25 inches, at head 5.5 inches, flange 6.75 inches. Without ornament; cutting crude.

P 2478.
Fiji.
Clark-Oldman.
Plate IV, 1.

Head: Ornament crude and much worn.

Socket: 2.5 inches wide at shaft, 4.5 inches distal; thickness 2 inches at distal knobs; faces uniform; edges of basketry ornament not clearly connected with ornament of faces. First unit: 1.75 inches long, without transverse band; at upper side rectangular rib 1.5 inches transversely, 1.75 inches longitudinally; in panel basketry pattern; no perforation. Central element: ridge 1.75 inches long, 0.25 inch wide proximal, 0.5 inch distal; no ornament. Third element: shallow depression carrying strongly marked knob merging into rib 0.5 inch wide, 0.25 inch thick, 3 inches from shaft; decoration, basketry. Second unit absent. Third unit: 1.75 inches long. Central element: 1.5 inches wide proximal, 0.75 inch distal, much abraded basketry; at proximal corners knobs roughly indicated, extended longitudinally in ribs to distal end of socket, outer 2.25 inches, inner 2 inches long; ribs without ornament, showing blade in angles; basketry ornament outside ribs.

Blade: 3 inches wide at socket, 5.5 at edge, but chipped; upper point without cusp, lower (chipped) point suggests cusp; thickness, on edge 0.75 inch, at thickest point, near center, 1.25 inches.

Ornament of blade: Right face very much worn; at 2.5 inches from socket curved lines radiant to points; at 3 inches base of central triangle 1.25 inches wide, other sides 2.25 inches; ornament between triangle and points apparently basketry carried over into basketry on edge of blade. Left face: two lines roughly curved from center of socket to points, spaces covered with transverse rows of roughly picked longitudinal incisions; at 2.5 inches from socket base of triangle 1.25 inches wide, other sides 2.25 inches; stripe next base 0.37 inch longitudinally, of 9 dextral diagonal lines; rest of triangle pecked incisions; from base apices of triangle and from longer sides roughly parallel lines to final element at edge of blade, these lines flanked by longitudinal strips of basketry 3.12 inches wide; these flanked by areas of longitudinal lines forming triangles with curved lines flowing from center of socket; edge of blade thin border of dextral diagonal lines on face; on edge proper, basketry ornament.

LIPPED CLUBS.

Plates II, *g*, *h*, *i*; VI, *a*, *b*, *c*. Provenience: Fiji.

The 15 pieces in this group form one of the most elegant and highly interesting series in the museum's collection of South Sea ethnica, and in addition I expect to employ the type for the establishment of a valuable theory of origins. Resting upon head forms, a subdivision of the group into three species is at once apparent, as here stated.

A. Edges of head rounded; rib in angle; lip and head oval; panels of roughened and pecked surface ending in the curve of the shaft in a distinctly marked line of demarcation and at the end in two pieces cover-

ing the whole of the lower sides, so far as they can be delimited in the rounded form, except that in 2474 the demarcation is not made clear and the form in this particular is transitional to species *B*.

B. Edges of head sharp; lip and head triangular; no rib in angle; transverse rugosity merging in shaft (except 3791 *a*, which has no rugæ but longitudinal rivings) and covering the whole of the lower sides of the head.

C. Edges of head sharp; lip and head narrow; no rib in angle, except 3791 and 3179; clearly marked panels of formal roughening which cover lower sides of the head.

All the pieces show on the face of the head a blade-like prominence from the center of the top to the lower angle.

TABLE 21.

Piece No.	Length of curve of lip.		Girth of haft and knob.		Measurements of angle.		Measurements of head.			Measurements of rough panel.		
	Outer to point (inches).	Inner to extremity of head (inches).	Haft (inches).	Knob (inches).	Width across (inches).	Height from bottom to tip (inches).	Width across face (inches).	Height of face (inches).	Length along top (inches).	Length on shaft (inches).	Width.	
											Least (inches).	Greatest (inches).
3186 *a*	40.5	38.5	5.75	7	2	5.5	2.25	3.25	3.75	8	1.75	2.5
3180	42	42	5.5	7	1.5	3.5	1.5	2.5	3	10	3	3.5
2474	39	39	6.25	8	2.5	6	2.5	4	4	14.5	2	6
3791 *c*	38	36.5	5	6.5	1.75	4	1.5	2	3	7.75	2.25	3.5
2476	40	40	4.75	5.75	1.5	4	1.75	2.5	3	8	2	2.5

The end of the haft exhibits a flange in 3791*b* and 2475, a neatly formed dome in all of species *A* and in 2495 and 3186 *c*, and in 3791 the rough whittling shows an incompleted dome; a well-formed flat knob in 3791 *a*, 2473, and 3181.

Perforation, little necessary in Fijian clubs of this length, is found as an orifice vertically through the edge of the flat knob in 3183, diagonal in 3782 *b*, and in 2475 another instance of that infrequent and probably modern diametrical perforation of the shaft which has been noted in missile club 2461 *a*.

For better comparison the data for each of the three species are given separately. In species *A*, as in this item for all the species, two measurements of length are taken (table 21), one along the outer curve to the point of the lip, the other along the inner curve to the extremity of the head. In 3 of these 5 pieces the two length-measurements are the same; in the 2 where difference is found, the shorter length is that along the inner curve. The next measurements (table 21) give the circumference of the haft and of the knob at the extreme end.

In table 21 is given the record for the lip on its outer face—the width across the angle, and the height from the bottom of the angle to the tip.

TABLE 22.

Piece No.	Length of curve of lip.		Girth of haft and knob.		Measurements of angle.		Measurements of head.			Measurements of rough panel.		
	Outer to point (inches).	Inner to extremity of head (inches).	Haft (inches).	Knob (inches).	Width across (inches).	Height from bottom to tip (inches).	Width across face (inches).	Height of face (inches).	Length along top (inches).	Length on shaft (inches).	Width. Least (inches).	Width. Greatest (inches).
3791 *a*	34.5	35	4.75	6.5	2.5	3.25	2.75	3.25	2	12	2.25	6.25
3791 *b*	38	38	4	4.75	2.25	2	2.25	2.25	1.5	13.5	2	5
2495	22	23	4	5.5	2	2.25	2	2	2	6	.....	.....
2473	40	40.5	5	6	2.5	2	2.75	2.75	1.75	12.5	2.75	6
3181	43.5	41.5	5.33	6.5	3.25	3	3.25	2.25	1.75	11.5	1.5	5.5

The head unit yields three measurements—the width across the face, which may be compared with the width in the angle of the lip, the height of the face, and the length along the top measured, from the line of the angle.

TABLE 23.

Piece No.	Length of curve of lip.		Girth of haft and knob.		Measurements of angle.		Measurements of head.			Measurements of rough panel.		
	Outer to point (inches).	Inner extremity of head (inches).	Haft (inches).	Knob (inches).	Width across face (inches).	Height from bottom to tip (inches).	Width across head (inches).	Height of face (inches).	Length along top (inches).	Length on shaft (inches).	Width. Least (inches).	Width. Greatest (inches).
3186 *c*	35	36	4.5	5.33	1.5	3.5	1.75	4.5	4	10.5	2.33	7.25
2475	43	42	5.5	7	1.75	4.5	2	5	4.25	15.5	2.75	8.5
3179	42	42	5	6.75	2.5	5.5	2.5	4.5	5.5	15	3.5	8
3186 *b*	42	39	6	7.5	2	5.5	2.5	8	5.5	15	4	13
3791	42	44	5.5	6.5	2.5	5	2	6.25	6.25	14	3	11

For the rough panel the length is taken from the edge of the head backward on the shaft along the inner curve and the width of the panel from one of its edges to the other at the two extremes of length.

The corresponding details for species *B* are set forth in table 22.

For species *C* the same details are offered in table 23.

The difference of the form of these clubs from others under examination precludes direct comparison. With the exception of 2495, a short and light weapon with another anomaly in the roughened panel, these are all clubs for two-handed use and correspond generally with the pandanus clubs in length, though far lighter. In collating the two lengths which have been measured, an interesting detail is found in the relation of the length to lip and head respectively, many of the weapons being the same in both measurements, and in the following list the difference of half an inch has been disregarded and where differences exist the measurement of that difference has been inserted

Equal.....3180, 2474, 2476, 3791 *b*, 2473, 3179, 3791 *a*.
Lip longer.....3186 *a* (2), 3791 *c* (1.5), 3181 (2), 3186 *c* (1), 3186 *b* (3).
Head longer.....2495 (1), 2475 (1), 3791 (2).

Of the 15 pieces, 7 show equality in length measurements, 5 have the lip measurement the longer by from 1 to 3 inches, 3 have the head longer by 1 or 2 inches.

TABLE 24.

Girth of haft (inches).	Piece No.	Girth of haft (inches).	Piece No.
4	3791 *b*, 2495	5.5	3180, 2475, 3791
4.5	3186 *c*	5.75	3186 *a*
4.75	2476, 3791 *a*	6	3186 *b*
5	3791 *c*, 2473, 3179	6.25	2474
5.25	3181		

The haft measurements are given for further reference in table 24.

The measurements of lip and head, specific to this group, are not comparable outside the group. The width of the lip ranges from 1.5 to 2.5 inches in species *A*, from 2.25 to 3.25 in species *B*, from 1.75 to 2.5 inches in species *C*; its height from 3.5 to 6 inches in *A*, from 2 to 3.25 inches in *B*, from 3.5 to 5.5 inches in *C*. So with the head; in width 1.5 to 2.5 inches in *A*, from 2 to 3.25 inches in *B*, from 1.75 to 2.5 inches in *C*; in height, from 2 to 4 inches in *A*, from 2 to 3.25 inches in *B*, from 4.5 to 8 inches in *C*; in length, from 3 to 4 inches in *A*, from 1.5 to 2 inches in *B*, from 4 to 6.25 inches in *C*.

The rough panel, also distinctive of this group, ranges in length from 7.75 to 14.5 inches in *A*, from 11.5 to 13.5 inches in *B*, from 10.5 to 15.5 inches in *C*.

Length: To end of lip, 40.5 inches; to end of head, 38.5 inches.
Shaft: Circumference at haft, 5.75 inches; at hemispherical knob, 7 inches.
Lip: Circumference, 6.25 inches; width in angle, 2 inches; height, 5.5 inches. **P 3186 a. Fiji. Plate II, h.**
Head: Circumference, 8.75 inches; width on face, 2.25 inches; height on face, 3.25 inches; length on top, 3.75 inches.
Roughened surface neatly paneled, 8 inches long, 1.75 and 2.5 inches wide.

Length: To end of lip, 42 inches; to end of head, 42 inches.
Shaft: Circumference at haft, 5.5 inches; at hemispherical knob, 7 inches; vertical perforation through edge.
Lip: Circumference, 4.5 inches; width in angle, 1.5 inches; height, 3.5 inches.
Head: Circumference, 6.25 inches; width on face, 1.5 inches; height on face, 2.5 inches; length on top, 3 inches.
Rough panel 10 inches long, 3 and 3.5 inches wide; covers lower edges of head.
Ornament: 2 pairs of irregularly punctate lines extend along shaft from knob; service of sennit from grip to and overlapping rough panel; on upper surface of head a band of zigzag following curve of ridge; 2 transverse zigzag straps.

P 3180.
Fiji.
W. H. Miller gift.

Length: To end of lip, 39 inches; to end of head, 39 inches.
Shaft: Circumference at haft, 6.25 inches; at hemispherical knob, 8 inches.
Lip: Circumference, 7 inches; width in angle, 2.5 inches; height, 6 inches.
Head: Circumference, 10 inches; width on face, 2.5 inches; height on face, 4 inches; length on top, 4 inches.
Rough panel 14.5 inches long, 2 and 6 inches wide; covers lower edges of head; polished.

P 2474.
Fiji.
Clark-Oldman.

Length: To end of lip, 38 inches; to end of head, 36.5 inches.
Shaft: Circumference at haft, 5 inches; at hemispherical knob, 6.5 inches.
Lip: Circumference, 5.5 inches; width in angle, 1.75 inches; height, 4 inches.
Head: Circumference, 5.75 inches; width on face, 1.5 inches; height on face, 2 inches; length on top, 3 inches.
Rough panel 7.75 incles long, 2.25 and 3.5 inches wide.

3791 c.
Fiji.
Pepper-Voy.

Length: To end of lip, 40 inches; to end of head, 40 inches.
Shaft: Circumference at haft, 4.75 inches; at domed knob, 5.75 inches.
Lip: Circumference, 4.5 inches; width in angle, 1.5 inches; height, 4 inches.
Head: Circumference, 6.5 inches; width on face, 1.75 inches; height on face, 2.5 inches; length on top, 3 inches.
Rough panel sharply outlined, 8 inches long, 2 and 2.25 inches wide.
Lip shows a deeply scored line concentric with its edges on upper faces

P 2476.
Fiji.
Clark-Oldman.
Plate VI, a.

Length: To end of lip, 34.5 inches; to end of head, 35 inches.
Shaft: Circumference at haft, 4.75 inches; at flat knob, 6.5 inches.
Lip: Circumference, 6.75 inches; width in angle, 2.5 inches; height, 3.25 inches.
Head: Circumference, 7.75 inches; width on face, 2.75 inches; height on face, 3.25 inches; length on top, 2 inches.
Rough panel: Rived surfaces longitudinal, 12 inches long, 2.25 and 6.25 wide; covers lower edges of head.
Ornament: Parceling of pandanus leaf and two parts of sennit square roping both applied at beginning of rough panel.

3791 a.
Fiji.
Pepper-Voy.

Length: To end of lip, 38 inches; to end of head, 38 inches.
Shaft: Circumference at grip, 4 inches, flanging 4.75 inches; transverse perforation at edge.
Lip: Width in angle, 2.25 inches; height, 2 inches. 3791 b. Fiji. Pepper-Voy.
Head: Width on face, 2.25 inches; height on face, 2.25 inches; length on top, 1.5 inches.
Rugosity, 13.5 inches long, 2 and 5 inches wide; covers lower edges of head.
Ornament: Parceling of pandanus leaf at beginning of rugosity; well-worked turk's head and sennit loop on haft.

Length: To end of lip, 22 inches; to end of head, 23 inches.
Shaft: Circumference at haft, 4 inches; at domed head, 5.5 inches.
Lip: Width in angle, 2 inches; height, 2.25 inches.
Head: Width on face, 2 inches; height on face, 2 inches; length on top, 2 inches; upper angles of head beveled. P 2495. Fiji. Clark-Oldman. Plate XI, 27.
Rugosity reduced to series of notches for 6 inches along lower angle of head and shaft.
Ornament: Grip, 6 inches, with roughly worked cross-hatcheled panels, some of the hatcheling filled in.

Length: To end of lip, 40 inches; to end of head, 40.5 inches.
Shaft: Circumference at haft, 5 inches; at flat knob, 6 inches. P 2473. Fiji. Clark-Oldman.
Lip: Width in angle, 2.5 inches; height, 2 inches.
Head: Width on face, 2.75 inches; height on face, 2.75 inches; length on top, 1.75 inches.
Rugosity: 12.5 inches long, 2.75 and 6 inches wide; covers lower edges of head.
Ornament: Grip, 8.75 inches, woven band-and-zigzag, with median and final straps of double band-and-zigzag.

Length: To end of lip, 43.5 inches; to end of head, 41.5 inches.
Shaft: Circumference of haft, 5.25 inches; of flat knob, 6.5 inches.
Lip: Width in angle, 3.25 inches; height, 3 inches.
Head: Width on face, 3.25 inches; height on face, 2.25 inches; length on top, 1.75 inches. P 3181. Fiji. Oldman. Plate II, g; VI, c; XIII, 47, 48, 49.
Rugosity, 11.5 inches long, 1.5 and 5.5 inches wide; covers lower edges of head.
Ornament: Sharply carved grip, 11.75 inches band-and-zigzag and basketry; added ornament of cross in circle surrounded by ring of zigzag and outer concentric circle, also small circle of 5 radii; knob ornamented with 2 circles of concentric band-and-zigzag overlaid by a 4-rayed star.

Length: To end of lip, 35 inches; to end of head, 36 inches.
Shaft: Circumference of haft, 4.5 inches; of domed knob, 5.25 inches.
Lip: Width in angle, 1.5 inches; height, 3.5 inches.
Head: Width on face, 1.75 inches; height on face, 4.5 inches; length on top, 4 inches. P 3186 c. Fiji.
Rugosity: Panel 10.5 inches long, 2.25 and 7.25 inches wide; covers lower edges of head, except for 0.12-inch band along edge separating the two faces; panel filled with quite regular hexagonal flat knobs divided by triple transverse straps of 3 rows each of dentelles with points down shaft, 1 strap at end of head, 1 at angle of lip, 1 midway beyond.
Ornament: Bounding edges of lip and panel sharply marked by carved molding.

Length: To end of lip, 43 inches; to end of head, 42 inches.
Shaft: Circumference at haft, 5.5 inches, flanging to 7 inches; perforated diametrically below flange.
Lip: Width in angle, 1.75 inches; height, 4.5 inches.
Head: Width on face, 2 inches; height on face, 5 inches; length on top, 4.25 inches; slightly rounded at upper edges.
P 2475. Fiji. Oldman.
Rugosity: Highly conventionalized, hexagonal flat knobs produced by cuts in three directions; panel 15.5 inches long, 2.75 and 8.5 inches wide, covers lower edges of head.

Length: To end of lip, 42 inches; to end of head, 42 inches.
Shaft: Circumference of haft, 5 inches; of flat knob, 6.75 inches.
Lip: Width in angle, 2.5 inches; height, 5.5 inches.
Head: Width on face, 2.5 inches, rounded corners; height on face, 4.5 inches; length on top, 5.5 inches.
P 3176. Fiji. W. H. Miller gift. Plate VI, b.
Rugosity: Conventionalized, hexagonal flat knobs; panel 15 inches long, 3.5 and 8 inches wide, divided by 4 straps of double band-and-zigzag, 1 at head, 1 at angle of lip, 1 midway, 1 at shaft, thus forming 3 compartments; not continuous; separated by plain 0.5-inch band along inner edge of club.

Length: To end of lip, 42 inches; to end of head, 39 inches.
Shaft: Circumference at haft, 6 inches; of flat knob, 7.5 inches.
Lip: Width in angle, 2 inches; height, 5.5 inches.
Head: Width on face, 2.5 inches; top rounded; height on face, 8 inches; length on top, 5.5 inches.
P 3186 b. Fiji.
Rugosity: Conventional, fine square flat knobs produced by heavy rectangular scoring; length, 15 inches, 4 and 13 inches wide; covers lower edges of head; two orifices in panel of hour-glass right-line pattern bounded by flat band concentric and deep scoring.
Ornament: Shaft from head to panel covered with service of sennit in yellow, black, and red, and one element of red coir twine.

Length: To end of lip, 42 inches; to end of head, 44 inches.
Shaft: Circumference at haft, 5.5 inches; at rude knob, 6.5 inches.
Lip: Width in angle, 2.5 inches; height, 5 inches.
Head: Width on face, 2 inches; height on face, 6.25 inches; length on top, 6.25 inches.
3791. Fiji. Pepper-Voy.
Rugosity: Conventional, irregular flat polygons; panel arising from shaft with sharp shoulder, 14 inches long, 3 and 11 inches wide, covers lower edges of head; band of dentelles at shaft and at angle of lip facing forward, at edge of head facing rearward; first panel on right face of club and second panel on left face have been filled with chunam.

Roughly whittled from 1.25-inch plank of soft wood; length to tip, 38 inches; length to head, 38 inches; height of lip, 5.5 inches; height of head, 6 inches; Length of head, 7 inches.
P 2477. Fiji. Clark-Oldman.

MACE TYPE.

Plate III, *a*, *b*, *c*, *g*. Provenience: Fiji.

At this point we pass from the types of clubs which show their immediate timber source in the stem of the tree with its attached root-body, or in the crotch, where the limb has been cut out with some part of the trunk. In the next several types we lack sure guide to the timber source until we reach at last the types in which we may read without

error the plank rived from the trunk. In this intermediate stage we can do no more than follow inference from our comprehension of the methods which the clubwright would follow in reducing as much as possible of his arduous toil. Inasmuch as all the clubs of this intermediate stage are distinguished in or about the head by the thickness, more or less pronounced, of the wood, we feel justified in regarding their timber source as either the branch or the stem, as might be the more convenient in manipulation.

The first of the intermediates is the mace, no matter what its length, characterized by a head of many spikes which may be cut as saw-teeth or as sharp cones. In the museum are 4 excellent pieces which fall into 2 well-marked genera, 2 long and armed with saw-teeth, the others short and armed with a manifold supply of cones. The longer weapons

TABLE 25.

	3792 *c.*	3792.	3792 *a.*	3792 *b.*
	Inches.	*Inches.*	*Inches.*	*Inches.*
Length	40.5	40.5	25.5	14.5
Haft	21.5	20.5	15	9.25
Head	19	18	10.5	5.25
Circumference haft	4.5	4.25	4.75	4

are clearly two-handed; of the smaller, one is distinctly one-handed for use as a supplementary weapon; the other by reason of the great weight of its head must have required both hands for effective service. Because of the paucity of material, which prevents comparison within the type, it suffices to show in table 25 only the critical measurements and to leave their consideration to a more general treatment later in the work. (See Krämer, Samoa, II, 210 *n*, *o*, *p*, 214 *d*.)

Length, 40.5 inches, of which head 19 inches. Circumference of haft, 4.5 inches, spreading to 6 inches. Length of haft, 21.5 inches, becoming square in section at 1.5 inches from square plate 0.5-inch thick and 2.25 inches square.

3792 c. Samoa. Pepper-Voy. Plate III, g.

Head: Square in section, with reentrant angles middle of each face. At angles row of deeply cut serrations tapering toward end from 2.25 to 3.5 inches; 22 teeth in row. In median reentrant angles rows of smaller teeth, 33 in row. End of haft coarsely domed; end of head cupped.

Poor workmanship, undoubtedly anterior to introduction of metals.

Length, 40.5 inches, of which head 18 inches. Circumference of haft, 4.25 inches, spreading to 5.5 inches. Lug broken, remains as an inverted conical irregular knob. Shaft circular in section to 19.5 inches, then for 3 inches square, 1.25 to 1.5 inches wide, to triangular plate 0.5-inch thick, 2.5 inches wide; on each face a projection.

3792. Samoa. Pepper-Voy. Plate III, a.

Head: Triangular section with reentrant angles on each face, 2.75 inches wide next shaft, 4 inches at end. At each angle row of 19

strongly carved teeth; in reentrant angles serrations of smaller teeth, 23, 25, and 23 teeth in rows. End of head cupped.

Ornament: Plain zigzag outlined throughout shaft, but not completely executed; 2 units of design indicate spirals dextral and sinistral respectively; 3 dentelles cut in edge of plate.

Length, 25.5 inches. Circumference of haft, 4.75 inches; length of haft, 15 inches, at which point circumference 4.5 inches. Head 10.5 inches long, in first inch sharply sloped from haft on a face 1.5 inches longitudinally; circumference of head next haft, 12.5 inches; at last row of teeth, 10 inches; finished with cone 1.75 inches high, 2.5 inches on face; 23 longitudinal rows of teeth, 19 teeth in each row.

3792 a. Samoa. Pepper-Voy. Plate III, b.

Ornament: Roughly carved zigzag on most of shaft; 1 element sinistral spiral.

Length, 14.5 inches. Circumference of haft, 4 inches, flanging to 5 inches. Lug flat, triangular, full width of haft, perforation broken through. Handle, 9.25 inches long to 4 rows of conical teeth 0.12-inch high, set in dextral spiral; then plate 0.25-inch thick, 4.75 inches circumference; 7 rows of teeth 0.5-inch high, set in sinistral spiral; end capped by lightly domed plate 0.12 inch thick, 1.5 inches diameter.

3792 b. Samoa. Pepper-Voy. Plate III, c.

Knife-cuts show this to be of modern manufacture, but the model is undoubtedly antique.

TALAVALU TYPE.

Plates III, *d, e, f;* Krämer, II, 213–78 *b,* 216 *a.* Provenience: Samoa.

Upon Samoan authority Dr. Krämer translates the name of this club as from *tala* spike or thorn and *valu* eight, the eight-spiked. One has sedulously to set himself on guard against Samoan interpretations of Samoan apparently composite words. Intellectually the folk are at a stage when explanation has a peculiar charm for them; they are consistently providing explanations, all as much entitled to consideration as those of a child. There are in this collection five *talavalu* pieces and the least number of spikes is 10 (2275). The derivation is undoubtedly from another *valu*, which in its verb employment signifies to scrape, to rasp, to shred.

This club series is set apart from the maces by the fact that in it the spikes are set on but two opposite edges of the blade and not more or less generally around it. In all the haft is flanged and has a lug; three of them have a distinct shoulder in which the shaft ends just before the beginning of the serration of the edges; four of them top off the head with a well-formed pyramidion. The exception in the matter of the pyramidion (2275) may not be classed as a *talavalu;* it lacks the distinctive shoulder, and instead of the characteristic finial it is topped off with a crutch-head. This type of finish is characteristic of the coconut-stalk clubs and in that association is explicable structurally; the objection to such ascription rests upon the absence of serrate edges from that type; yet it might prove possible to discover intermediates which would connect the sparse teeth of this piece with an overdevelop-

ment of the bands in such a club as 111 *j*. The critical measurements of these pieces are given in table 26 in inches.

Length, 34 inches; circumference of haft, 4.5 inches, flanging to 6.5 inches. Lug keystone type, 1 inch high, 1 inch wide, 0.5 inch thick, diagonal to plane of blade, perforated.

P 2275. Samoa (?). Oldman. Plate III, f.

Serrations arise from shaft without distinguishing shoulder, 4 pairs 2.5, 3, 3.5, and 4 inches in width respectively, separated by intervals along stem of 0.5, 1, and 0.75 inch.

Head: Crutch finish, 4.5 inches wide, 2 inches thick, cusps finished in triangles beveled 1.5 inches along edge of head and 1 inch at corners; along median line triangles 0.75 inch along edge of head.

TABLE 26.

	Piece No. 2275 (inches).	Piece No. 3788 *a* (inches).	Piece No. 2272 (inches).	Piece No. 3099 *a* (inches).	Piece No. 3788 (inches).
Length	34	22.5	45.5	43.5	31.5
Shaft	21	9.75	29	29.5	17
Blade	13	12.75	16.5	14	14.5
Haft, circumference	4.5	3.75	4.5	4	3.75

Length, 22.5 inches; circumference of haft, 3.75 inches, flanging to 4.75 inches. Lug triangular, vertical to plane of blade, perforated. Median angles continued from head 2 inches down shaft.

3788 a. Samoa. Pepper-Voy. Plate III, d.

Handle 9.75 inches long, expanding to circumference of 4 inches, sharply shouldered toward blade.

Blade: 12.75 inches long, diamond section, each face tapering from width of 1 inch near shaft to 2 inches next final pyramidion; strongly serrated on two edges, teeth grading from 0.5 to 1.25 inches long, leaving plain surfaces next median angle; intervals of teeth approximately 1.5 inches deep, 20 teeth in each row.

Pyramidion strongly angled; width, 4 inches; height, 1.75 inches, thickness, 2 inches.

Of modern manufacture, but sufficiently long in use to present scrawls of letters indicative of ownership. On one face appears IIUT, which is the familiar Samoan name Tuii in mirror writing. On the other face of four scrawls only N and I are recognizable.

Length, 45.5 inches; circumference of haft, 4.5 inches, flanging to 6 inches. Lug semicircular in plane of blade, perforated, and partially pierced again in V-hole.

P 2272. Samoa. Oldman.

Handle: Length, 29 inches, expanding to circumference of 11 inches. The sharp shoulder of other clubs of this type here merges indistinguishably in serrations.

Blade: 16.5 inches long, uniform width of 5.75 inches; serrated in a checkerboard pattern uniformly 2 inches on each face of squares; terminal unit corresponding to pyramidion is a square of 4 inches, in which longitudinal angle is carved as a rib 0.12 inch wide and 0.12 inch thick, outer edges slightly curved; thickness at end, 1.5 inches.

Ornament: 5 triple ties of sennit spaced along shaft, as shown by stains, 4 of which persist.

Length, 43.5 inches; circumference of haft, 4 inches, flanging to 5.5 inches. Lug pentagonal, vertical to plane of blade, V-hole perforation.

Shaft: Median angles continued down blade to grip; length, 29.5 inches, expanding to circumference of 7 inches; sharply shouldered toward blade. P 3099 a. Samoa.

Blade: Length, 14 inches; uniform width, 3.5 inches throughout, strongly serrated on two edges; teeth carried back to median line; intervals approximately 1 inch deep; 9 teeth on each edge; thickness, 1.5 inch throughout.

Pyramidion angled only on median line and merged with upper pair of teeth.

Length, 31.5 inches; circumference of haft, 3.75 inches, flanging to 5 inches. Lug semicircular, full width of haft, in plane of blade, perforated.

Shaft: Median angles continuous through blade to grip; length of handle, 17 inches, expanding to circumference of 4.25 inches, passing from circle to flattened diamond in section; sharply shouldered toward blade. 3788 Samoa. Pepper-Voy. Plate III, e.

Blade: 14.5 inches long, diamond section, tapering from width on each face of diamond of 1 inch to 1.75 inches at final pyramidion; strongly serrated at edges; teeth from 0.87 inch to 1.75 inches long, carried back to median line with interspaced triangles along that line; intervals 1.5 inches deep.

Pyramidion strongly angled; width, 3.5 inches; height, 1.75 inches; thickness, 1.5 inches.

Ornament: Panel 4.12 inches long on one side of shaft nearest blade completed in band-and-zigzag; outline of spirals in two directions to form panel 2.25 inches.

COCONUT-STALK TYPE (LAPALAPA).

Plates III, *h*, *i*, *j*; Krämer, 210 I, *l*, 213–77 *a*, 213–78 *c*, *d*, 216 *c*. Provenience: Samoa, Tonga, Rotumā, Fiji.

For this type of weapon there is not only the consenting statement of all the islanders who employ it that it is really carved in representation of the stalk of the coconut leaf, but the raw stalk itself is in frequent use as a club in fencing contests. In the vocabularies are found the Samoan *lapalapa* and its congener *abaabai* in Tongan, used both of the weapon and of the leaf-stem in its peaceful aspect, and the Samoan supplies the two verbs *saulu* and *tuulu* in the sense of trimming the stalk so that it may be used as a club. It is found in one of the Samoan legends of the origin of social custom. The boy Pava was filled with curiosity as to the errand which called his father away from home in the earliest morning of every day. One day the lad followed on earth and into heaven after heaven until he came to the abode of the gods, where kava was being served. The prying youngster was discovered by the gods in the hush tabu, which even now accompanies the kava service on earth when the liquor is ready to drink. Vexed at the interruption, one of the gods picked up a coconut-stalk and addressed a blow at the intruder and burst his belly asunder. The subsequent repair of the damaged boy and the introduction of kava to the earth form an interesting continuation of the narrative.

The coconut leaf is a portentous object of the vegetable world, for all ordinary measurements of common botany must be multiplied an

hundredfold. It consists of the expanded portion, which embraces the stem from which the leaf grows, a stalk which is bare for several feet and is quite strong enough to serve as a club, last of all the many leaflets. The wings of the part of the stalk which engages with the parent trunk become at their edges so thin as to lack substantial character; it is for that reason that they are trimmed off, leaving a considerable body which on its natural lower face offers the two faces of a mass whose section is a rhomb, and in the trimming of the wings the rhomb is naturally completed. Inasmuch as the trunk with which the leaf-stalk engages is circular, the end of the stalk has a corresponding depression. This establishes all the critical dimensions of the club carved in imitation of this stalk, so much so that the hardwood club marked *h* reproduces quite distinctly the proportions of the natural stalk.

Dr. Krämer, relying too confidently upon Samoan information, has set into the same class both the *lapalapa* and the *talavalu*, and in the case of the latter he interprets the lateral teeth as symbolic of the persisting stems of the leaflets. Several vital objections oppose this assignment of source. The leaflets of the coconut leaf are remote from the naked stem and knob, which are used for clubs; in the *talavalu* the teeth are so close to the knob that in several of these instances they merge therewith. The stalk of the leaf is tough and of considerable size; the stalk of the leaflets is short and comparatively insubstantial and could serve no weapon purpose. The end of the head of the *talavalu* is a considerable pyramidal body; the end of the *lapalapa* is characterized by a depression. In the museum specimens this is so constant that there are but four pieces in which it is cut square off and only one in which it is domed.

The purpose of trimming off the wings of the solid end of the leaf-stalk is to prevent the splitting of the temporary club in the fencing. Even after the trimming this tendency to sliver downward into the stem persists and is capable of very simple correction. Rather than lose his bout through damage to his weapon, the fencer using the green stalk frequently reinforces it by ties lashing it from side to side, and these ties may be either sennit or pandanus leaf, both of which are frequently met with in these collections. As a detail of ornament the sennit tie is susceptible of interpretation as the source of the rather prominent cross-ribs on certain of these clubs (fig. *i*) and the pandanus ties (Plate II, *c*) as the source of the bands on certain others (fig. *j*). Herein is a criterion upon which to erect three subdivisions of the type:

A. No cross-ribs; head diamond-section, in which the two axes are nearly equal. 2281 in respect of the head is transitional to species *B*.

B. Single cross-rib; head diamond section in which the minor axis is considerably the less. 3178 in respect of the head somewhat resembles species *A*.

C. Multiple cross-ribs, head wide and thin: (1) Ribs vertical to median line; (2) ribs obliquely set toward median line (2278, 2279). Table 27 sets a convenient record of the critical dimensions of species *A*—that which lacks cross-ribs.

TABLE 27.

Piece No.	Length (inches).	Haft girth (inches).	Blade face (inches).	End (inches).
2270	37	1.75 by 1.25	2.25	4 by 2
3099	28	5	3	5 by 3.25
2280	31	3.75	2	3.75 by 2
2281	35	4.5	3	5.5 by 1.25
3178 *a*	35.5	4.5	2	3.25 by 2.5

In 2270 is found the unusual diamond section of the stem and haft, and for that reason the dimensions are given in terms of the two axes. The haft flanges in 3099, 2280, and 2281; all the ends carry a lug—a square knob in 2270, triangular in 3099, semicircular in 2280 and 3178 *a*,

TABLE 28.

Piece No.	Length (inches).	Haft girth (inches).	Blade face (inches).	End (inches).
3172	49	3.5	2.5	4.25 by 1
3173	42.5	4.5	2.25	4 by 1.25
3178	35	5	3.5	3.5

pentagonal in 2281; all the lugs are pierced, 2270 and 3178 *a* exhibiting the V-perforation. All the heads have rhomboidal ends; one is cut square across, one domed, three cupped.

The dimensions of species *B*, the clubs which have but a single cross-rib, are presented in table 28.

TABLE 29.

Piece No.	Length (inches).	Haft girth (inches).	Blade face (inches).	End (inches).
2279	40.5	4.25	2	3.5 by 1.75
2278	41	4.25	2.25	4 by 1.5
3172 *a*	50	3.5	3	6 by 1.12
3172 *b*	42.5	4	2	3 by 1
2273	44	4	2.5	4.75 by 1.5
2277	44.25	3.75	2	4.5 by 1.5
2276	42	3.75	2	4 by 1.25
2274	39	4	1.75	3 by .75
2266	42	4.25	1.75	3 by .75

The haft flanges in 3173 and 3178, and they have perforated lugs, respectively semicircular and pentagonal, while 3172 lacks flange and lug and perforation. The ends are cut square in 3172 and 3173, cupped in 3178. The dimensions of species *C* are shown in table 29.

Flanging at the haft is found in 2279, 3172 *b*, 2273, 2277, 2274, 2266. All save 2266 have pierced lugs, triangular in 2279 and 2274, pentagonal in 2278 and 2277, semicircular in 3172 *a*, 3172 *b*, 2273, 2276; the V-perforation is found in 3172 *b* and 2273. All the heads are cupped except 2266 (cut square) and 3172 *b* (too worn for determination); 2273 carries an unusual band over the curve.

Length, 37 inches.

Shaft: Longitudinal ridges throughout; end of haft diamond-shaped, 1.75 inches by 1.25 inches; lug square, in plane of blade; V-perforation.

P 2270.
Samoa.
Oldman.
Plates III, h; IX, 4; XIII, 54, 55; XIV, 62, 63, 70, 71, 72, 73, 76; XV, 96; XVI, 111; XVII, 142, 143.

Blade: Planes of face 2.25 inches wide; end diamond-shaped, 4 by 2 inches; strongly cupped.

Ornament: Unit 1, 3.75-inch alternate panels transverse band-and-zigzag, much condensed, and three longitudinal band-and-zigzag extended, with in each case a solid triangle in middle of line. Unit 2, 3 inches, same design on opposite faces. Unit 3, 3 inches, same design on same faces as unit 1. Unit 4, 3.5-inch transverse band-and-zigzag as in unit 1 on panels 1 and 3; on panel 2, two stripes of longitudinal band-and-zigzag and one of loop-and-tie; panel 4, loop-and-tie and one element of basketry. Unit 5, 3-inch panels of triangles of basketry with band-and-zigzag in corners. Unit 6, 3.25 inches, same. Unit 7, 3 inches, two adjoining panels of one face, same as unit 5; on opposite face one panel basketry, the other herring-bone. Unit 8, 2.5-inch panels herring-bone and basketry on same face as unit 7, but alternating panels; on opposite face panel of 2 band-and-zigzag transverse condensed and 3 herring-bone; next panel 3 transverse band-and-zigzag condensed and 2 band-and-zigzag longitudinal arranged quarterly. Unit 9, on one face 2 panels as in unit 5; other face one panel herring-bone longitudinal, the other herring-bone transverse. Unit 10, one face panel herring-bone transverse, the other herring-bone longitudinal; other face, panel herring-bone transverse, panel diagonally divided into herring-bone longitudinal and band-and-zigzag longitudinal. Unit 11, one panel continues ornament last panel of unit 10; adjacent panel 1 element herring-bone, 1 element basketry, separated by longitudinal loop-and-tie; other face, 1 panel basketry and longitudinal herring-bone, one panel of one element transverse band-and-zigzag condensed, 4 elements herring-bone. Unit 12, one panel transverse herring-bone, panel longitudinal herring-bone with one element basketry; other face, panel transverse herring-bone, last panel continued ornament of corresponding panel in units 9, 10, 11. Unit 13, 2 inches on median line, 2.5 inches at edges, panels of basketry, herring-bone, and band-and-zigzag irregularly combined.

Human and animal figures on all four sides; on one face such designs are restricted to units 11 and 12, on other face distributed as far up the shaft as unit 7.

Length, 28 inches.

Shaft: Circumference of haft, 5 inches, flanging to 6 inches; lug triangular, vertical to plane of blade, perforated.

P 3099.
Samoa.

Blade: Planes of face, 3 inches wide; end diamond-shaped, 5 by 3.25 inches; ridge along major, diagonal.

Ornament: Panels of band-and-zigzag, some completed, others merely blocked out; grip, 4 inches; 4 dextral spirals partly cut.

Length, 31 inches.
Shaft: Circumference of haft, 3.75 inches, flanging to 4 inches; lug semicircular, in plane of blade, perforated; ridges extend from blade into grip. P 2280. Samoa. Oldman.
Blade: Planes of face, 2 inches wide; end diamond-shaped, 3.75 inches by 2 inches, slightly cupped.
Ornament: None.

Length, 35 inches.
Shaft: Circumference of haft, 4.5 inches, flanging to 5.5 inches; lug pentagonal, in plane of blade, perforated; ridges distinguishable on shaft as far as grip. P 2281. Samoa. Oldman.
Blade: Planes of face, 3 inches wide; end diamond-shaped, 5.5 by 1.25 inches, slightly cupped.
Ornament: None.

Length, 35.5 inches.
Shaft: Circumference of haft, 4.5 inches; lug semicircular, vertical to plane of blade, V-perforation.
Blade: Planes of face, 2 inches wide; end diamond-shaped, 3.25 by 2.5 inches, strongly domed. P 3178 a. Samoa. Oldman.
Ornament: 22 band-and-zigzag straps; panels of herringbone and band-and-zigzag; 2 panels of basketry carrying bird-and-man designs on opposite faces in conjunction. Plates XIV, 77, 78; XV, 90, 100, 101, 102, 103, 104.

Length, 49 inches, single band at 34.5 inches. P 3172. Rotumā. Oldman.
Shaft: Circumference of haft, 3.5 inches; end clumsily whittled; circumference at band, 5.25 inches.
Blade: Planes of face, 2.5 inches wide; end diamond-shaped, 4.25 by 1 inch; blade covered with transverse ridges running 9 to the inch.
Ornament: At grip traces of poor carving marked out but not executed.

Length, 42.5 inches; single band at 28 inches, 0.25 inch wide, 0.12 inch thick, lateral points 0.5 inch.
Shaft: Circumference at haft, 4.5 inches, flanging to 6 inches; end cut square; lug semicircular, in plane of blade; circumference at band, 6 inches, near end 8 inches, flanging to 9 inches. P 3173. Tonga. (Rotumā.)
Blade: Planes of face 2.25 inches wide; end diamond-shaped, 4 by 1.25 inches, cut square.
Ornament: None.

Length, 35 inches; double strap at 21 inches, 0.12 inch wide and thick, lateral points, 0.25 inch.
Shaft: Circumference of haft, 5 inches, flanging to 6.5 inches; end cut square; lug pentagonal, in plane of blade, perforated. P 3178. Samoa. (Rotumā.)
Blade: Planes of face, 3.5 inches wide; end diamond-shaped, 6 by 2.75 inches, cupped.
Ornament: None.

Length, 40.5 inches, of which blade is 19 inches; at 21 inches 30° strap of 6 bands, of which first merges in swell of shaft; at 24.75 inches 7 bands; at 28.75 inches 7 bands; at 33 inches 8 bands; at 38 inches 9 bands to head of club, all at same angle. P 2279. Samoa. Oldman.
Shaft: Circumference at haft, 4.25 inches, flanging to 5 inches; head cut square; lug triangular, full width, in plane of blade, perforated. Plate III, i.
Blade: Median line strongly ridged; head 3.5 inches by 1.75 inches, cupped.
Ornament: None.

Length, 41 inches, of which blade is 19 inches; at 22 inches, transverse strap of 2 bands, the upper merging in swell of shaft; these bands completed on one face; at 22.25 inches, 30° strap of 5 bands; at 26.75 inches, same; at 30.25 inches, strap of 2 bands; at 34.5 inches, of 9 bands; at 38.75 inches, same; all at same angle. P 2278. Samoa. Oldman.

Shaft: Longitudinal angles deliquesce in grip; circumference at haft, 4.25 inches; lug pentagonal, in plane of blade, perforated.

Blade: Median line strongly ridged; head, 4 by 1.05 inches, cupped.

Ornament: 3 ties of 3-part sennit, and stains which show similar treatment of whole of grip.

Length, 53 inches, of which blade is 20 inches.

Shaft: 4 longitudinal angles continuous throughout; circumference at haft, 3.5 inches; end cut square; lug small, semicircular, vertical to plane of blade, V-perforation, planes of shaft 1 inch wide at blade. P 3172 a. Plates III, j; X, 16; XV, 91, 92

Ornament: Shaft, alternate panels of incised lines transverse; blade, double strap 0.12 inch thick; panel 1.75 inches herring-bone; double strap 0.25 inch thick; panel 2.75 inches basketry and herring-bone; flat strap 0.37 inch wide; panel 3 inches herring-bone, basketry; flat strap 1.5 inches wide of 3 strap-units, of which center is overlaid by herring-bone on one face and double diamonds on other; panel 3 inches wide, basketry and sinistral diagonal cordage on one face, cordage and herring-bone on other; double strap 1.5 inches, herring-bone and solid diamond on one face, triple angles on other; panel 3 inches wide, cordage and herring-bone alternate with similar patterns on former panel, on other face basketry and cordage as on former panel; flat strap 0.25 inch wide; panel 1.25 inches herring-bone on both sides, on each face octopus-star headed toward median line; acute edges of this panel finished with crenellation of four members.

End of club, 6 by 1.12 inches, slightly cupped, polished.

Length, 42.5 inches, of which blade is 19 inches; at 23.25 inches strap of 2 bands 0.12 inch thick; at 26.75 inches strap of 7 bands; at 28.75 inches strap of 8 bands; at 35.25 inches, strap of 10 bands; at 40.25 inches, strap of 11 bands, beyond which band-and-zigzag pattern of blade appears. P 3172 b Oldman.

Shaft: Longitudinal angles continuous throughout; circumference at haft 4 inches, flanging to 5.25 inches; lug semicircular, vertical to plane of blade, V-perforation; end worn but not cupped.

Ornament: band-and-zigzag throughout.

Length, 44 inches, of which blade is 21 inches; at 23 inches, strap of 2 bands 0.12 inch thick at median line, 0.75 inch thick at edges; at 25 inches, strap of 5 bands same dimensions; at 28 inches, strap of 9 bands 0.67 inch thick at edges; at 32 inches, strap of 11 bands, same dimensions; at 36.5 inches, strap of 10 bands 1 inch thick at edges; at 40.75 inches, strap of 6 bands 1.25 inches thick at edges and set outward at 30° angle. P 2273. Samoa. Oldman.

Shaft: Circumference at haft, 4 inches, flanging to 5.25 inches; lug semicircular, full width, in plane of blade, V-perforation.

Blade: End, 4.75 by 1.5 inches; cupped, rounded band 0.12 inch thick over head in continuation of median lines.

Ornament: Tie of 5 parts of sennit.

Length, 44.25 inches, of which blade is 16.5 inches; at 27.5 inches, strap of 2 bands 0.25 inch thick, of which one merges in swelling of shaft; at 29 inches, strap of 5 bands; at 31.75 inches, strap of 7 bands; at 35.5 inches, strap of 9 bands; at 40 inches, strap of 9 bands. P 2277. Samoa. Oldman.

Shaft: 4 longitudinal angles continuous throughout; circumference at haft, 3.75 inches, flanging to 5.5 inches; lug pentagonal, in plane of blade, pierced.

Blade: End, 4.5 by 0.5 inch, cupped.

Ornament: Stain of one tie.

Length, 42 inches, of which blade is 14.5 inches; at 27.25 inches, strap of 4 bands 0.12 inch thick; at 30.5 inches, strap of 6 bands; at 34.5 inches, strap of 7 bands; at 39.25 inches, strap of 9 bands.

Shaft: Longitudinal ridges of blade rapidly deliquesce in shaft; circumference at haft, 3.75 inches; lug semicircular, in plane of blade, perforated. P 2276. Samoa. Oldman.

Blade: Circumference, 4.25 inches at beginning; end, 4 by 1.25 inches, cupped.

Ornament: Stains of 3 ties.

Length, 39 inches, of which blade is 12 inches; at 27 inches, strap of 4 bands in 1.75 inches, 0.25 inch thick at edges; blank space 2.5 inches; strap of 5 bands in 2.5 inches; blank space 2.75 inches; strap of 5 bands in 2.25 inches. P 2274. Samoa. Oldman.

Shaft: Circumference at haft, 4 inches, flanging to 4.5 inches; lug triangular, full width, in plane of blade, perforated.

Blade: Circumference at shaft, 4.5 inches; end 0.75 inch thick, worn but suggestive of cupping.

Ornament: 3 ties of sennit, 5 coils in first and third, 3 coils in second.

Length, 42 inches, of which blade is 14.5 inches; at 27.5 inches, strap of 5 bands 0.25 inch thick at edges; at 31 inches, strap of 8 bands; at 36 inches, strap of 10 bands; at 41.5 inches, strap of 3 bands forming end. P 2266. Tonga. (?Fiji.)

Shaft: Circumference at haft, 4.25 inches, flanging to 5 inches; end domed.

Ornament: Herring-bone, band-and-zigzag, and basketry throughout.

PADDLE CLUBS.

Plate III, *k*, *l*. Provenience: Samoa, Tonga, Fiji.

In studying the *lapalapa* clubs we began with a group the bulk of whose head showed clearly that their lumber source was in the round of the trunk or branch. Gradually we passed to clubs of the same design in which the heads were wide but lacked thickness, a mark of a transition of lumber source to the plank. It is only on account of design that we have included such a piece as shown in Plate III, *j*, among the *lapalapa*, inasmuch as it is evident that it was carved from a plank.

Attention is renewed upon the amount of work which awaits the clubwright and his quite human endeavor to reduce that labor. The width of the head and of the clubs next to be examined will make it quite apparent that an enormous amount of cutting with very poor

tools would be required to shape the piece from the round. It is known that these island carpenters had mastered the trick of the wedge (*tina*) and it was within their power, albeit slowly and laboriously, to rive from the trunk a more or less regular plank. From inspection of them at their work we may state that the clubs with which we now are to deal are worked from rived lumber.

The paddle may serve in time of need for a club, and there is island authority for the statement that these clubs are derived from such use of the tool of their common navigation. But the design has undergone development in the art of the club. Not one of these pieces is a copy of the island paddle; it could not be used successfully for the propulsion of a canoe; it is merely a conventional design which has been specialized upon the paddle base. As in the *lapalapa*, so here is found the cross-rib as a convenient criterion for the presentation of two species of paddle club:

A. Cross-ribs heavily carved over shaft at blade.

B. Lacking cross-ribs.

TABLE 30.

Piece No.	Length (inches).	Haft (inches).	Blade-length (inches).	Width (inches).	Thickness (inches).
2257	52	4.5	15	5	0.75
2258	48	4	14	5	1.75
2256	53	4.5	19	4.75	1.5
2260	50	4.5	18	5	1.5
2262	43.5	4	18	5.5	1.5
2257 *a*	42	4.5	15.5	4.75	1

In species *A* there are 6 pieces for examination, the essential dimensions being shown in table 30.

Flanging of the shaft is found in 2257, 2258, 2257 *a*, and in 2260 the unusual form of rising by successive steps. The end of the shaft is cut square across. The lug is lacking to 2262, triangular in 2257 and 2256, semicircular in 2260 and 2257 *a*, and in 2258 has been so shattered as to lack distinction. The maximum width of the blade seems roughly to bear some relation to shape; several pieces occur in which the maximum width is found on the blade at the same distance from the tip and others at which that width occurs about one and a half times that measurement from the tip, the latter producing in the blade a more pointed effect.

Of species *B* there are 17 specimens, and here it is necessary to omit some of the blade-measurements because of the impossibility of establishing a demarcation between blade and shaft (table 31).

Flanging of the haft is found in all these clubs except 3359, 3174 *a*, 3356, 3360, and 3174, and in 2261 we find a long flange, or more prop-

erly a taper. The ends of hafts are commonly cut square, but in 3146, 2259, and 2268 we find them lightly domed. Lugs are found, except in 3174 *a*, 1975, and 2268; they are semicircular in 3146, 2261, 3145, 3355, 3359, 3358, and 3174, triangular in 2271, 2264, 2259, and 3357, square in 3356, and mutilated beyond distinction in 2269. The width of blade falls into the two classes established for the former species.

TABLE 31.

Piece No.	Length (inches).	Haft (inches).	Blade-width (inches).	Thickness (inches).
3146	46	4	3.75	1.5
2261	41.5	4	3.75	1.5
3145	44	4.25	4	1.25
3355	45	4	4	.75
2269	42	4.25	3.5	2.25
3359	37	3.5	....	1.75
3174 *a*	39	4	4	2
3356	45	4.25	3.25	1.5
2271	44	4.25	3.5	2.25
1975	49	4.25	4	2.25
3358	41.5	3.75	3.75	1.5
3360	43	4.5	4.25	1.75
2264	42	4.25	3.5	2.25
3174	41	4	4	1.5
2259	47	4.25	4.25	1
2268	34	3.5	3.25	.75
3357	43.5	4	4	1.75

Length, 52 inches, of which blade is 15 inches; single cross-rib at 34.5 inches, twin cross-ribs at 36 inches.

P 2257. Tonga. Oldman. Plate III, k; XIV, 74.

Haft: Circumference, 4.5 inches, flanging to 5 inches; cut square; lug triangular, full width, in plane of blade, perforated.

Blade: Width indeterminate by reason of chipping at greatest breadth, but more than 5 inches; thickness 0.75 inch.

Ornament: Crudely paneled in band-and-zigzag longitudinal and transverse until near first cross-rib, where several basketry patterns appear; cross-ribs marked with diagonals or herring-bone incisions; the two faces of the club differ in decoration, each longitudinal half of each face decorated independently; lizard figure on one face of club longitudinally placed in area of maximum width.

Length, 48 inches, of which blade is 14 inches; twin cross-ribs at 31 inches and 34 inches.

P 2258. Tonga. Oldman. Plates IX, 6; XII, 43, 44, 45; XIV, 59, 79, 80; XV, 87, 88; XVII, 138.

Haft: Circumference, 4 inches, flanging to 5 inches; cut square; lug vertical to blade, broken.

Blade: Width, 5 inches at 4 inches from tip; thickness, 1.75 inches.

Ornament: Grip, 4.5 inches, beginning and ending with double band-and-zigzag strap, filled with longitudinal same element and strapped with double band in 5 zigzag points 0.75 inch wide; 4 longitudinal stripes from grip to tip; with the exception of one panel of palm leaf, 3 designs of band-and-zigzag are in use in various combinations. In one unit a pair of longitudinal band-and-zigzag is crossed

diagonally by a double element of the same, sometimes sinistral and sometimes dextral. In another a longitudinal element is crossed by a double band-and-zigzag at each end, and this is associated with a crossing in the center producing a basketry appearance in the panel. In yet another, longitudinal element is crossed by transverse double band-and-zigzag and at each end by a series of diagonals suggesting palm-leaf; when these opposite diagonals have been brought together the carver has been sedulous to keep them distinct, either by a band or by a strongly marked incision. The blade is paneled in stock patterns with 4 figures from life on one side; on the other, 2 figures from life and 2 figures of concentric circles.

Length, 53 inches, of which blade is 19 inches; cross-ribs at 34 inches.

Haft: Circumference, 4.5 inches; cut square; lug triangular, vertical to plane of blade, perforated.

Blade: Width, 4.75 inches at 5.5 inches from tip; thickness, 1.5 inches.

P 2256.
Tonga.
Oldman.
Plates IX, 1; XII, 36, 37; XV, 98.

Ornament: At haft, pair of zigzags bordered by 2 bands; grip, 4 inches, dextral spiral of band-and-zigzag crossed by sinistral spiral of the same, making 1.5 turns; from this point 4 longitudinal bands continue to tip of blade; 20 transverse straps of double band-and-zigzag; in first 6 compartments sinistral diagonals of band-and-zigzag alternate with unit of 1 longitudinal zigzag separated by plain band from a pair of zigzags; at compartment 7 the two faces of the club differ as far as the tip. Face A: Compartments 7, 8, 9, unit of longitudinal band-and-zigzag at lower left with sinistral diagonal of same upper right. Compartments 10, 11, 12, alternation of panels consisting of transverse double band-and-zigzag with panel having two longitudinal band-and-zigzag and 1 zigzag without band forming diamond pattern; transverse straps 11 and 12 show passage from zigzag to straight lines; cross-rib double, unornamented; left side of blade, in first compartment longitudinal band-and-zigzag lower left, herring-bone upper right, separated by distinct diagonal; second compartment longitudinal band-and-zigzag lower left, sinistral diagonal upper right; 4 transverse band-and-zigzag to center rib; rest of blade modified basketry with peculiar triangular interruption of design near tip. Face B: Compartments 7, 8, 9, left side longitudinal band-and-zigzag lower left, transverse same, upper right separated by broad diagonal; right side, longitudinal band-and-zigzag upper left, transverse same lower right. Compartments 10, 11, 12 left, longitudinal band-and-zigzag upper left, dextral diagonal lower right. Blade left: all compartments longitudinal band-and-zigzag lower right, dextral diagonal upper left. Blade right: compartments 13, 14, 15, 16 divided by cross-saltire in which overs and unders alternate; in 13, bottom triangle of sinistral band-and-zigzag, left triangle of transverse, upper triangle of dextral, right triangle of longitudinal; in 14 and 15, bottom and upper triangles dextral, other units as before; in 16, bottom triangle dextral, upper sinistral; rest of blade in compartments of longitudinal band-and-zigzag in upper left, sinistral upper right. On face A in compartment 3 left human figure.

Length, 50 inches, of which blade is 18 inches, cross-rib at 32 inches.

Haft: Circumference, 4.5 inches, flanging to 5.5 inches in 4 steps with incised ornament; square cut, lug semicircular, vertical to plane of blade, perforated.

Blade: Width, 5 inches at 5 inches from tip; thickness 1.5 inches.

P 2260.
Tonga.
Oldman.
Plate X, 13, 19; XI, 17, 20, 23.

Ornament: Carina on blade indicated by stripe of zigzag bordered by band on each side, which ornament borders whole of this face of blade; other face, carina indicated by single plain band, border

as on other face only as far as point of maximum width. Grip: right-hand spiral of strongly sculptured zigzag with double band for 12 inches to transverse strap of same element, whole grip covered with sinistral spiral of plain band 1 inch wide making 5.5 turns. Rest of shaft to rib divided by longitudinal bands into 4 panels; each panel contains 2 elements 2 inches long, 1 inch wide, alternately in each direction; one element dextral spiral zigzag with double band, the other, triple herring-bone dextral, elements parted by plain band. First two elements on 2 adjacent panels of double length; in one the herring-bone pattern has but 2 units. Cross-rib: double band 0.25 inch thick, ornamented with radial incisions on faces toward blade. Blade: face having ornate carina is divided by carina and transverse bands into 18 proportionate compartments; bands of subdivision alternate between zigzag with double band and plain band alternating in direction of length and width; each panel consists of band-and-zigzag dextral from bottom corner filled with sinistral element and the remaining space with horizontal of same unit. Other face divided by longitudinal band into distinct halves. Left half divided by zigzag and double band into 6 compartments, of which 1, 3, 4, and 5 are filled with right-and-left employment of the element divided by plain longitudinal band, except 4, which is divided by zigzag and double band; compartment 2 has basketry of 2 elements, one consisting of 3 band-and-zigzag, the other coconut-leaf, together with a third stripe of band-and-zigzag alternately longitudinal and transverse. Right-hand side: panels 1, 4, 5, and 6 as panel 1 left; panel 2 corresponds to 2 left, except that in two of its elements herring-bone replaces the coconut; transverse subdivision by zigzag and double band.

Length, 43.5 inches, of which blade is 18 inches; cross-rib at 25 inches.

Haft: Circumference, 4 inches, oval in section for 5 inches next blade, square-cut end with insert of 15-toothed cachalot-ivory plate.

Blade: Width, 5.5 inches at 9 inches from tip; thickness, 1.5 inches, not carinate.

P 2262. Tonga. Oldman. Plate X, 10.

Ornament: Grip, 8.5 inches longitudinal band-and-zigzag; sinistral stripe of band-and-zigzag 2 inches wide, 7.75 inches in one complete turn, to strap of 2 plain bands, followed by sinistral spiral same as before 8.25 inches to 3 bands at cross-rib. Blade: 4 panels of same design flanked by 9 half-panels; each element of design suggests coconut leaf, in which midrib is represented by distinct band, and leaflets pointing toward haft by single zigzag and double bands.

Length, 42 inches, of which blade is 15.5 inches.

Haft: Circumference, 4.5 inches, flanging to 5.5 inches; lug semicircular, in plane of blade.

Blade: Width, 4.75 inches at 4 inches from tip; thickness, 1 inch.

P 2257 a. (?)

Ornament: Unfinished specimen blocked out ready for ornament; grip, longitudinal band-and-zigzag, finished; next section partly blocked out, 1 stripe completed, 3 others begun.

Length, 46 inches.

Haft: Circumference, 4 inches, flanging to 5 inches, slightly domed; lug semicircular in plane of blade.

Blade: Width, 3.75 inches at 2.5 inches; thickness, 1.5 inches.

P 3146. Tonga. Oldman. Plate XIII, 53, 56; XV, 89, 108.

Ornament: 4 longitudinal bands haft to tip. No indication of beginning of blade or grip. Shaft, band-and-zigzag longitudinal and transverse, herring-bone, and one panel of 4 longitudinal elements alternately diamond and unit of ovals with major

axis marked (cowry base) and diamond punctation; length of panel, 6 inches. At 26 inches, where blade might be expected to begin, ornament slightly changes to panels of band-and-zigzag and herring-bone and basketry, with no noteworthy difference between sides of blade. At point of greatest width 12 units surrounding blade of arc subtending diamonds convex toward tip. Upon each face of blade at tip, left half figure of bird, right half figure of man with radiant arc over head.

Length, 41.5 inches.

Haft: Circumference, 4 inches, tapering to 4.5 inches at head; square-cut; lug semicircular, vertical to plane of blade.

Blade: 3.75 inches wide at 2 inches; thickness, 1.5 inches.

P 2261. Tonga. Oldman. Plate XIV, 81, 82; XVI, 118, 129; XVII, 140.

Ornament: Strap band-and-zigzag at haft; grip, 6.5 inches to plain transverse strap divided at 3.5 inches by double band-and-zigzag strap. Compartment 1: sinistral spirals of band-and-zigzag, of dentelles and basketry and one spiral of dentelles; bird-points-bird-points-bird-straight lines-bird-zigzag-bird. Compartment 2: conventional patterns of zigzags, dentelles, straight lines, 4 longitudinal bands to tip, 3 beginning at middle of grip, one at end. Double band-and-zigzag at 23.5 inches marking off blade. General ornament, conventional patterns, no particular distinction between sides of blade. Two associated panels on shaft picture, each a pair of birds in flight. Human figures, a pair brandishing paddle-clubs, one with arms uplifted, another indicating arc above head.

Length, 44 inches.

Haft: Circumference, 4.25 inches, flanging to 5.5 inches; lug roughly carved, V-perforation.

Blade: Width, 4 inches at 4 inches; thickness, 1.25 inches.

P 3145. Tonga. Oldman. Plate XIV, 66, 67, 68, 69, 75; XV, 105; XVI, 117, 128; XVII, 139, 145.

Ornament: 4 longitudinal bands strongly marked, carving of whole club very deep and sharp. Patterns of band-and-zigzag, basketry, 16 figures, human and animal. Around flange of haft, 4 fish of 2 patterns alternately, one showing 2 fins at center of body, the other 3, a distinction holding in fish figures found on blade.

Length, 45 inches.

Haft: Circumference, 4 inches, flanging to 5.25 inches; lug semicircular, vertical to plane of blade, V-perforation.

Blade: Width, 4 inches at 2.5 inches; thickness, 0.75 inch.

P 3355. (?) Tonga. Oldman. Plate III, 1; XI, 18, 22, XII, 40.

Ornament: 4 longitudinal bands from tip to 10 inches from haft. Sinistral spiral of 15 turns in 21 inches, carrying pattern of herring-bone and band-and-zigzag with double bands; other face band-and-zigzag, herring-bone, and basketry of various types.

Length, 42 inches.

Haft: Circumference, 4.25 inches, flanging to 5.25 inches; lug broken.

Blade: Width, 3.5 inches at 2 inches; thickness, 2.25 inches.

Ornament: 4 longitudinal bands; 18.5 inches of shaft filled with transverse band-and-zigzag for half circumference, other half paneled with basketry and band-and-zigzag; one half of blade basketry and band-and-zigzag pattern covered with dextral diagonals; other half of smaller pattern covered with twice as many dextral diagonals; on one face of tip 2 pairs of arcs convex toward point, subtending graduated zigzags.

P 2269. Tonga. Oldman.

Length, 37 inches.

Haft: Circumference, 3.5 inches; square-cut; lug small, semicircular, vertical to plane of blade.

Blade: Width, 4 inches at 2 inches; thickness, 1.75 inches.

Ornament: Much worn; 4 longitudinal bands throughout; band-and-zigzag sinistral spiral making 14 turns in 21 inches; band-and-zigzag, herring-bone, and on blade some basketry; 7 human and animal figures.

P 3359.
(?) Tonga.
Oldman.
Plate XIII, 50; XV, 83, 84, 85; XVI, 112, 119, 120.

Length, 39 inches.

Haft: Circumference, 4 inches; cut square.

Blade: Width, 4 inches at 3 inches from tip; thickness, 2 inches.

Ornament: Herring-bone and band-and-zigzag with basketry; 4 longitudinal bands; 1 human figure.

P 3174 a.
(?) Tonga.
Oldman.
Plate XV, 99.

Length, 45 inches.

Haft: Circumference, 4.25 inches; cut square; lug square, V-perforation.

Blade: Width, 3.25 inches at 2 inches; thickness, 1.5 inches.

Ornament: 4 longitudinal bands; diagonal panels band-and-zigzag and herring-bone for 22.5 inches to inconspicuous single band apparently indicating blade.

Blade: Basketry, band-and-zigzag, herring-bone, similar on two faces, except that on one face the tip shows two arcs subtending graduated lines.

P 3356.
(?) Tonga.
(?) Oldman.
Plate XII, 35, 38, 39; XIII, 51.

Length, 44 inches.

Haft: Circumference, 4.25 inches, flanging to 6 inches; cut square; lug triangular, not full width, vertical to plane of blade, perforated.

Blade: Width, 3.5 inches at 2 inches from tip; thickness, 2.25 inches.

Ornament: 4 longitudinal bands throughout; band-and-zigzag, herring-bone, basketry; dextral spiral of double band, 6 turns in 23 inches.

P 2271.
Tonga.
Oldman.

Length, 49 inches.

Haft: Circumference, 4.5 inches, flanging to 5.5 inches; cut square; V-perforation.

Blade: Width, 4 inches at 3 inches; thickness, 2.25 inches.

Ornament: 4 heavy longitudinal bands throughout; band-and-zigzag and basketry; both faces alike; 7 human figures, and 7 dowels for applied ornament, of which one piece of pearl-shell remains in place; these applied ornaments balance respectively to the axis of the club, 1 pair at 16 inches from tip, 2 pairs at widest part of club balanced in design, the odd ornament at extreme tip of head; 2 applied figures of the octopus design, one at tip 1.15 inches long and 0.25 inch wide; others of irregular form.

P 1975.
(?) Tonga.
Huston collector.
Plate XV, 106; 109, 110; XVI, 113, 121, 126; XVII, 146.

Length, 41.5 inches.

Haft: Circumference, 3.75 inches, flanging to 5 inches; square-cut; lug semicircular, in plane of blade.

Blade: Width, 3.75 inches at 2.5 inches; thickness, 2.25 inches.

Ornament: 4 longitudinal bands; haft, 1 inch strap of 4 units band-and-zigzag; basketry for 16 inches, with 7 straps of triple band-and-zigzag except one-half of third strap filled

P 3358.
(?) Tonga.
Oldman.
Plate XIII, 52; XVII, 136.

by quadruple zigzag without band; blade, herring-bone and band-and-zigzag, faces alike; one face of tip has 4 arcs subtending graduated zigzag, other face 2 groups of paired human figures with intervening design.

Length, 43 inches.

Haft: Circumference, 4.5 inches; cut square; lug reduced to knob vertical to plane of blade; V-perforation.

Blade: Width, 4.25 inches at 3 inches from tip; thickness, 1.75 inches. P 3360. (?) Tonga. Oldman.

Ornament: Strap of band-and-zigzag at haft. Grip 11.5 inches, herring-bone with band-and-zigzag in slight dextral spiral to plain transverse strap; panel, 5.25 inches to similar band, filled with herring-bone and band-and-zigzag and 2 pairs of bands making saltire cross; similar compartment 4 inches, same decoration to double band-and-zigzag strap. Blade: 4 longitudinal bands strongly marked, band-and-zigzag, herring-bone, basketry, faces similar.

Length, 42 inches.

Haft: Circumference, 4.25 inches, flanging to 6 inches; lug triangular, vertical to plane of blade.

Blade: Width, 3.5 inches at 2.5 inches; thickness, 2.25 inches. P 2264. (?) Tonga. Oldman.

Ornament: Unfinished band-and-zigzag and basketry. Blade finished except for extreme tip; longitudinal band strongly marked; one face, alternate panels of basketry and longitudinal band-and-zigzag separated by double strap band-and-zigzag; other face, triangular panels, alternately longitudinal and diagonal band-and-zigzag separated by diagonal bands.

Length, 41 inches.

Haft: Circumference, 4 inches, unflanged; cut square; lug semicircular, V-perforation.

Blade: Width, 4 inches at 3 inches; thickness, 1.5 inches. P 3174. Tonga. Oldman. Plate XI, 21; XVI, 122.

Ornament: Broad band of sinistral spiral making 20 turns in 21 inches; intervening pattern herring-bone in 3 distinct patterns: (1) longitudinal and dextral diagonal; (2) alternating diagonals; (3) alternating diagonal of 2 sets opposed; strap of 38 bands and 2 saw-teeth design facing outward in space of 0.75 inch. Blade: longitudinal bands on face and edge; at widest part strap of double band-and-zigzag; left half of each face in basketry; right half band-and-zigzag; small human figure.

Length, 47 inches.

Haft: Circumference, 4.25 inches, flanging to 5 inches; slightly domed; lug triangular, vertical to plane of blade, perforated.

Blade: Width, 4.25 inches at 3.5 inches from tip; thickness, 1 inch. P 2259. Tonga. Oldman. Plate XVII, 144.

Ornament: Strap of band-and-zigzag at haft; dextral spiral double band-and-zigzag making 10 complete turns in 23.5 inches; interspaces filled with band-and-zigzag, herring-bone, and basketry units without uniformity. Blade covered with same elements without uniformity, except that at point of beginning of blade 1-inch strap of 5 units of zigzag with band at each end, this followed by a 2.5 inch strap of basketry; on blade a composition of human figures suggesting victory in battle, the two exterior figures headless.

Length, 34 inches.

Haft: Circumference, 3.5 inches, flanging to 4.25 inches; slightly domed. P 2268. Tonga. Oldman.

Blade: Indicated by strap; width, 3.25 inches at 2 inches; thickness, 0.75 inch. Plate XIV, 64, 65; XV, 86, 107; XVI, 127, 130; XVII, 141.

Ornament: 4 longitudinal bands throughout; at flange of haft 4 straps band-and-zigzag; 6 straps band-and-zigzag at 3, 6, 9, 11.5, 14, and 16.5 inches; shaft uniformly longitudinal band-and-zigzag, same at tip of blade; elsewhere on blade slight use of basketry design; groups of 7 figures, human and animal.

Length, 43.5 inches.

Haft: Circumference, 4 inches, flanging to 5.25 inches; lug triangular, vertical to plane of blade.

Blade: Width, 4 inches at 2.25 inches; thickness, 1.75 inches. P 3357. (?) Tonga. Oldman.

Ornament: Transverse band-and-zigzag for 18 inches. Blade: one face basketry and transverse band-and-zigzag in alternate panels; other face, small panels band-and-zigzag and basketry, the whole crossed frequently by bands of dextral diagonal, producing appearance of lashing.

CARINATED CLUBS.

Plate III, *m;* Krämer 211, *b, c, d,* 213–77, *c, e.* Provenience: Samoa.

In this group is associated a number of clubs in which the distinctive character is the keel adown the blade and generally a rib at the point of maximum breadth. In a few pieces these distinctions may not have been treated with distinct carving, but their structural presence is clearly indicated by formative angles. With the exception of two pieces none of this group represented by 7 specimens carries any ornamentation. Krämer draws several designs of varying head-forms and attributes them to foreign influence, yet in connection with unmistakably similar forms now in Berlin he accepts without hesitation the attribution to Samoa. There is every reason to regard this type as a distinct Samoan creation; if other museums show pieces from other sources we should prefer to assign them to Samoan influence.

We have now to consider the cross-bars and the longitudinal reinforcement. The cross-bar has already presented itself to view in the case of some of the *lapalapa* and some of the paddle clubs, and we have suggested that it is typical of a tie of sennit put across for the purpose of strengthening the weak points of the weapon. This explanation does not seem to account for the longitudinal band of the carinated clubs and of some of the serrated group; yet in the latter group we shall find conclusive evidence in continuity of design beyond these somewhat considerable bands that they are regarded as something applied after the pattern of ornament has been completed; that is to say that, although part of the structure, they represent a reinforcement rather than a structural feature. The resolution of the problem is not yet in view; we simply present it for consideration.

While these clubs show a range of nearly 7 inches in total length, the length to the cross-rib lies within 2 inches, apparently a proof that the rib-ends were to serve as the effective point in delivering the stroke. All the hafts are flanged except 2291 and 2499; these also lack lugs along with 2286; the lugs are triangular and pierced in 2285, 2287, and 2284, pentagonal and pierced in 2283. Diagonal perforation is found without lug in 2286, and in 2287, after the septum of the lug had been shattered, a diagonal perforation was added. The hafts are cut square, except that 2284 is cupped and 2499 has a flat cap after the Fijian manner.

The critical dimensions of these 7 clubs are presented in table 32.

TABLE 32.

	Piece No. 2286 (inches).	Piece No. 2285 (inches).	Piece No. 2287 (inches).	Piece No. 2291 (inches).	Piece No. 2284 (inches).	Piece No. 2499 (inches).	Piece No. 2283 (inches).
Length	46.5	44	43	47	41	45.25	40.5
To rib	30.5	30	30.5	31	29	31	24.5
Head	16	15	12.5	15.5	12	14.25	16
Width	4.5	3.75	4	4	6	4.75	6.5
Thickness	1	1.5	1	1.5	2	.75	2
Haft	4.25	4	4	4	4.5	4.5	4.5

P 2286. Samoa. Oldman.

Length, 46.5 inches; circumference at haft, 4.25 inches, flanging to 5 inches; width at cross-rib, 4.5 inches. Haft transversely pierced at end. Longitudinal rib not distinguishable, transverse rib lightly carved, somewhat semicircular, convex toward blade.

Ornament: Beginning of double zigzag from end of cross-rib to middle of shaft.

P 2285. Samoa. Oldman.

Length, 44 inches. Cross-rib at 30 inches; lug at 28 inches. Circumference of haft, 4 inches, flanging to 5.5 inches. Width at cross-rib, 3.75 inches. Ribs strongly present, but not carved. Lug at end of haft triangular, full width of haft, pierced. At 30 inches ring carved around shaft. At 28 inches pierced lug, unusual device, suggests point of attachment for some light ornament, as in clubs of Santa Cruz. It appears that cross-rib just beyond this lug had been blocked out but never carved.

P 2287. Samoa. Oldman.

Length, 43 inches. Cross-rib at 30.5 inches. Circumference of haft, 4 inches, flanging to 5 inches. Width at cross-rib, 4 inches. Longitudinal rib strongly present, but not carved; cross-rib carved. Lug triangular, full width of haft, perforation broken through; second perforation diagonally through head and shaft.

P 2291. Samoa. Oldman.

Length, 47 inches. Cross-rib at 31 inches. Circumference of haft, 4 inches. Width at cross-rib, 4 inches. Strongly ribbed on blade.

Length, 40.5 inches, of which blade is 16 inches; heavy cross-rib at 24.5 inches.

Shaft: Haft cut square; lug pentagonal, vertical to plane of blade; section of shaft quadrangular through one-third next blade. P 2283, Samoa. Oldman.

Blade: Width, 6.5 inches at 8 inches from tip; thickness, 2 inches, heavily carinated for full length.

Ornament: None.

Length: 45.5 inches, of which blade is 15 inches.

Shaft: Circumference at haft, 4.5 inches, at flat knob, 5.25 inches; longitudinal angles carried into grip; cross-rib at 31 inches.

Blade: Width, 5 inches; transverse band, 0.25 inch thick, 0.67 inch wide; width near tip, 2.75 inches; thickness, 0.75 inch. P 2499. Fiji. Clark-Oldman.

Ornament: Double band-and-zigzag transverse on flange of knob; grip, 4.75 inches longitudinal same; strap transverse same; panel 4.75 inches same, alternately longitudinal and transverse, 2 units unfinished.

Length, 41 inches. Cross-rib at 29 inches. Circumference of haft, 4.5 inches, flanging to 6.5 inches. Width at cross-rib 6 inches; thickness 2 inches. Haft cupped. Lug triangular, full width of haft, vertical to plane of blade, perforated. Strong longitudinal keel on blade slowly merging into shaft. Cross-rib somewhat semicircular, convex toward blade. P 2284. Samoa. Oldman. Plate III, m.

SERRATED CLUBS.

Plate I, *d*, *e*, *f*; Krämer, 210 *g*, 212–76, 214 *b*. Provenience: Samoa, Fiji.

It can not be doubted that 2470 represents a different type, for the critical detail of the serration and the sharp angle just above the cross-rib are absent. Yet in gross the resemblance in form is sufficient to admit of at least temporary grouping of this piece with others clearly serrated. A specimen very similar to this was given me by the late King Malietoa Laupepa and passed on to the National Museum in Washington. The dimensions are given in table 33.

TABLE 33.

	Piece No. 3790 *b* (inches).	Piece No. 3790 (inches).	Piece No. 3790 *a* (inches).	Piece No. 3176 *a* (inches).	Piece No. 2470 (inches).	Piece No. 3187 (inches).	Piece No. 2690 (inches).	Piece No. 2498 (inches).	Piece No. 2496 (inches).	Piece No. 2497 (inches).
Length	41.5	46	42	42	53	47	49.5	36	45	29
Blade	15	20	16	17	26	18	19	11	17	9
Rib	26	25	28	25	28	28	30.5	25	28	20
Haft	4.5	5.75	4	4.75	6.5	4.75	5.5	3.5	4.5	2.75
Width	9	6	8	13.75	14	9.5	12.75	7.5	9.5	5.5
Thickness	1	1.25	1	1.75	2	1.25	1	.75	1.5	.75

All of these pieces have the characteristic Fijian flat cap at the end of the shaft, except that 2498 is finished with the frustum of a cone and 2497 is finished with the unusual ornament of a ball. The same condition as to suspension holds in this type as before explained, and

therefore we find but two clubs pierced, V-perforation in 3790 *b* and diagonal in 2496.

Length, 41.5 inches, of which blade is 15 inches. Circumference of haft (oval section), 4.5 inches; of flat knob, 6.5 inches; V-hole. Transverse rib at 26 inches, 1 inch wide, 0.5 inch thick. Shaft begins to merge 1.5 inches from rib. Width at rib, 9 inches, at 0.5 inch 7 inches, at 2 inches 5.25 inches, at 13 inches 3.5 inches. Longitudinal angles scarcely noticeable on shaft. Serration coarse and irregular. No ornament.

3790 b.
Fiji.
Pepper-Voy.

Length, 46 inches, of which blade is 20 inches. Transverse rib at 25 inches, 1.25 inches wide, 1.5 inches thick, median ridge throughout. Circumference of haft, 5.75 inches; circumference of knob, 7 inches, sharply domed. Width of blade at 2 inches, 5.5 inches; at 6.75 inches, 5.5 inches; at 10 inches, 5.75 inches; at 13.25 inches, 6 inches; at 16.75 inches, 6.5 inches. Thickness on median line of blade, 1.25 inches. Serrations 24 in number, extending for 6.75 inches.

Ornament: Ties of screw-palm leaf near blade.

3790.
Fiji.
Pepper-Voy.

Length, 42 inches, of which blade is 16 inches. Circumference of haft, 4 inches; of domed knob, 6 inches. Transverse rib at 28 inches, 0.75 inch wide, 0.5 inch thick. Width at rib, 8 inches; at 0.5 inch, 6 inches; at 2 inches, 4.5 inches; at 12 inches, 2.75 inches. Serrations within 2 inches Median angles accentuated in blade, deliquescent in shaft.

Ornament: Coarse punctation on portion of transverse rib.

3790 a.
Fiji.
Pepper-Voy.

Length, 42 inches, of which blade is 17 inches. Circumference of haft, 4.75 inches; of cap-shaped knob, 5 inches. At 25 inches transverse rib, 0.5 inch thick, 0.75 inch wide; shaft begins to merge at 1.5 inches above. Width at rib, 13.75 inches; at 0.5 inch, 11 inches; at 2.5 inches, 7.5 inches; at 14 inches, 4 inches. Serration very coarse and irregular within 2 inches.

P 3176 a.
Fiji.
Pepper-Voy.

Length, 53 inches, of which blade is 26 inches. Circumference of haft, 6.5 inches; of flat knob, 9 inches. At 18 inches shaft begins to merge in blade and begins longitudinal rib 0.5 inch thick, 0.75 inch wide, extending to end of blade. At 28 inches transverse rib of same dimensions, slightly convex toward handle. Width at transverse rib, 14 inches; at 3 inches from crossing ribs, 13 inches; at 12 inches, 10 inches; at 20 inches, 8.5 inches.

Ornament: Pattern continuous under both ribs. Blade edged by continuous border of blank teeth extending inward and alternating basketry pattern outward. Carving (coarsely executed) of small dentelle in rows, which in but few instances have been developed into zigzags. In the four angles of the cross-ribs blank circles 2 inches in diameter, and in approximating these circles the basic lines of dentelles seem to suggest a distortion of the design; one circle is distinguished by an inner concentric ring irregularly scored.

P 2470.
Fiji.
Clark-Oldman.
Plate I, f.

Length, 47 inches, of which blade is 18 inches. Circumference of haft, 4.75 inches; of flat knob, 6 inches. At 29 inches transverse rib 0.25 inch thick, 0.75 inch wide. Shaft begins to merge at 2 inches above rib. Moderately fine serration within 4.5 inches. Width at rib chipped; at 9 inches, 6.5 inches; at 14 inches, 5 inches.

P 3187.
Fiji.
W. H. Miller gift.

Ornament: Shaft covered with close-set spiral cord of nassa shell wound over leaf-tie foundation.

Length, 49.5 inches, of which blade is 19 inches. Circumference of haft (oval), 5.5 inches; of flat-topped knob, 7.5 inches. At 30.5 inches, transverse rib 0.5 inch thick, 1 inch wide. Shaft begins to merge at 4 inches above rib. Width at rib, 12.75 inches; at 1 inch, 9.5 inches; at 12 inches, 6 inches; at 15 inches, 5 inches.

P 2690. (?) Samoa. L. Myers-Oldman. Plate I, d.

Ornament: Grip of 8.5 inches band-and-zigzag in longitudinal strips crossed by 2 spirals of same and final strap of same. Blade decoration begins at point where shaft swells to merge into blade, its continuity under rib clearly indicated; on face of blade diamond panels carrying various combinations of band-and-zigzag.

FIG. 1.

NOTE: The author has seen this type of clubs in Samoa; *cf.* Krämer, "Samoa," Vol. II, Bild. 79 *b*, with the label "Fidji-Keulen in Stuttgart mit Samoa bezeichnet," proof that others have found the same attribution.

Length, 36 inches, of which blade is 11 inches. Circumference of haft, 3.5 inches; of conical knob (frustum) at base, 4.5 inches, at top, 4 inches, with height of 0.75 inch. At 25 inches, transverse rib 0.25 inch thick, 0.5 inch wide. Width at rib, 7.5 inches; at 0.5 inch, 5.25 inches; at 2 inches, 3.75 inches; at 9 inches, 2.87 inches. Shaft merges into blade at 1 inch above rib. Serration coarse, within 2 inches.

P 2498. Fiji. Oldman (ascribed to New Caledonia).

Length, 45 inches, of which blade is 17 inches. Circumference of haft (oval section), 4.5 inches; of lightly domed knob, 5.5 inches, pierced at angle through edge. At 28 inches median rib 0.5 inch wide, 0.25 inch thick. Shaft begins to merge into blade 2 inches above transverse rib. Width at rib, 9.5 inches; at 0.5 inch, 7.5 inches; at 1 inch, 6.5 inches; at 3 inches, 5 inches; at 14.5 inches, 3.33 inches. Longitudinal angles strongly marked throughout. Serration very fine, within 1 inch.

P 2496. Fiji. Clark-Oldman.

Length, 29 inches, of which blade is 9 inches. Circumference of haft, 2.75 inches; of knob, 3 inches. At 20 inches transverse rib 0.25 inch thick, 0.25 inch wide. Width of blade at rib, 5.5 inches; at 0.5 inch, 4 inches; at 2 inches, 3 inches; at 8 inches, 1.67 inches. Shaft begins to merge into blade at 1 inch from rib. Serrations extend for 2 inches and appear on one flange toward the shaft. Median angular ridge found in slight trace on one side of blade and adjacent shaft.

P 2497. Fiji. Clark-Oldman. Plate I, e (accession number 16205).

Manuscript label (possibly autographic): "Fijian Club, Polynesian Islands, H. M. Denham, 1854."

Captain Denham, R. N., visited Fiji in 1854; author of the Voyage of the *Herald*.

Length, 29 inches. Circumference of haft, 3.25 inches, flanging to flat knob 4 inches in circumference. At 9.75 inches, round shaft becomes oval with circumference of 3 inches. At this point begins on each face a longitudinal rib 7.5 inches long, 0.37 inch wide, 0.12 inch thick, meeting a transverse rib of same dimensions convex toward handle. Width of blade on chord of the arc, 7.5 inches, developing in smooth curves from shaft; width of blade, 7 inches to distance of 8.75 inches from transverse rib; end of blade semicircular, with radius of 3.5 inches; thickness of blade, 0.25 inch.

P 2501. Fiji. Clark-Oldman.

No ornament. Very light black wood, with varnish of *Bischoffia javanica*.

CRESCENT TYPE.

Plate I, *h;* Krämer, 210 *m*, 213–77 *f*, 214 *c*. Provenience: Fiji, Tonga.

This is a small group of clubs of extreme beauty of design, the three distinctive curves of the head being struck with great grace and precision. The type is represented in the museum by 3 pieces, and not

TABLE 34.

	Piece No. 2263 (inches).	Piece No. 3186 *d* (inches).	Piece No. 2500 (inches).
Length.....	24.25	38.5	34
Haft.....	3.5	4.5	4
Width.....	8	14	12.5
Thickness.....	1.25	1.75	.25

very many are found in other collections, a satisfactory argument that it was a rare form in island use. Two of the pieces are attributed to Tonga, one simply on the authority of the vendor, Oldman of London, one on the authority of the collector, E. S. Clark, who ranks as accurate, and this passed through Oldman's hands also. One piece, purchased through Oldman, lacks attribution and authority of the collector; it was accessioned with a suggested attribution to Tonga, but Fiji is quite as possible, for I have seen the type in that archipelago. Krämer figures a fine specimen at Stuttgart as attributed wrongly to Samoa, but I agree with him in this instance, inasmuch as Samoans have assured me that the club is Fijian and Tongan and was not in Samoan use. It is a cutting club, for the curves arising from the shaft are sharp and the cusps form effective points for a pecking blow. The measurements of the three pieces are given in table 34.

The dimensions of length and circumference of haft agree in making it clear that these weapons were designed for single-handed use. The ends of the hafts are finished in two pieces with a flat knob which is finished as a square: the third has a highly domed knob, as shown in Plate I. There is neither lug nor perforation.

Length, 24.25 inches. Circumference of haft, 3.5 inches; elegantly finished flat knob nearly square, 5.67 inches perimeter; angles continuous throughout; midrib not present on blade. At 17 inches (circumference 4 inches) blade begins to swell; at 22.5 inches, width of blade 8 inches; height of arc between cusps, 1.75 inches; maximum thickness of blade, 1.25 inches, tapering to cusps. **P 2263. Tonga. Oldman.**

Ornament: Inlay of 14-pointed star of cachalot ivory at end of knob and 17-pointed star at center of end of blade. Except for the knob and the end of blade, surface completely covered with band-and-zigzag pattern. Grip 5.5 inches longitudinal band-and-zigzag, ending in a single transverse band. Shaft from grip to 14.5 inches diamond pattern of double band-and-zigzag with sinistral spiral of triple band-and-zigzag making 2.5 turns, alternating with similar spiral of double band-and-zigzag. Above point of ending of triple spiral 2 complete diamonds of double band-and-zigzag. Face of blade occupied by trapezoid of zigzag, with triple band continued in 2 diamonds to edge of club nearest shaft of same type, and other 2 triangles occupying each cusp respectively filled with double band-and-zigzag.

Length, 38.5 inches. Circumference of haft, 4.5 inches; of flat knob, 5.5 inches. Haft angular throughout; knob neatly squared; haft flattening to circumference of 7 inches and thickness of 1 inch at point where median ribs begin. Median ribs continuous from handle to end, 10 inches long, 0.12 inch wide, 0.12 inch thick. At 7 inches from beginning of median ribs, 14 inches. Height of arc at end of club above line drawn between cusps, 3.25 inches. Width at beginning of median ribs, 1.75 inches, tapering to cusps. Flat faces of blade flaring from haft to end. **P 3186 d. (?) Tonga.**

Ornament: Ties of sennit of 3 parts at base of knob, at 1, 3.5, 6, 9.5, and 12.5 inches along shaft, as shown by stains.

Club repaired by original owner, as shown by gum derived from the berries of *Cordia aspera* and by the employment of V-holes, of which 2 are found on one face at each end of break and 1 in center of break on other face.

Length, 34 inches, of which 12 inches is blade. Circumference of haft, 4 inches; rounded knob, 5.5 inches; at beginning of blade, 4.75 inches; section of haft diamond-shaped. Blade reinforced on each face by longitudinal rib in center 0.25 inch wide, 0.12 inch thick, terminating 0.25 inch from end. Width of blade at 9.5 inches, 12.5 inches; height of end arc, 3 inches along median rib above cusp secant; thickness at end, 0.25 inch, fining to 0.12 inch at cusps. Curve of cutting-edges developing smoothly from beginning of blade to cusps. Flat faces of club flaring from haft to end. **P 2500. Tonga. Clark-Oldman. Plate I, h.**

Ornament: None.

MUSHROOM TYPE (FA'ALAUTALIGA).

Plate I, *g;* IV, 4, 5; Krämer, 213–77 *d*, 214–80. Provenience: Samoa.

While of the same general type as the crescent clubs, this distinctively Samoan type exhibits marked dissimilarities in the head and shaft. The curves of the head are of a different order; the edges are not sharp; the cusps are less effective for the pecking blow. It is clear that the value of this weapon lay in its force of impact. The shaft is sharply angled throughout. There are here two species of the type and each is represented in the plates of this volume and in Krämer's

work. One species, intended for single-handed use, is distinguished by a long and slim shaft and smaller head which rises sharply from a little-expanded shaft. The other has a much larger head, which begins its formation little above the grip. In all the specimens which we have observed this club is most elaborately ornamented. The dimensions are recorded in table 35.

Each of these pieces carries the perforated lug, semicircular in the former, triangular in the latter. Krämer's illustrations show the presence of lugs, but the perforation and form of lug are not clear.

TABLE 35.

	Piece No. 3789 (inches).	Piece No. ANSP 15743 (inches).
Length.....	28.25	27
Haft.....	3.75	8.5
Width.....	6.75	10.5
Thickness...	1.5	2.5

Length, 28.25 inches. Circumference of haft (angular), 3.75 inches, flanging to 4.25 inches; lug semicircular, full width, vertical to plane of blade, pierced. Circumference at 12 inches, 4 inches; at 18 inches, 5 inches; at 23 inches, 7 inches; four angles continuous throughout, midribs not carved. At 23 inches width across cusps 7 inches; at 26.12 inches width of blade 6.75 inches; height of subtending arc, 2 inches; thickness, 1.12 inches; median angle continuous as a rib across end of club; planes of blade slightly hollowed.

3789. Samoa. Pepper-Voy. Plate I, g; XII, 42.

Ornament: Simple zigzag beginning at 12 inches; double unit of concentric squares for 3 inches; 3 bands transverse zigzag for 1 inch; unit of longitudinal zigzag for 1.5 inches; 5 bands transverse zigzag 1.75 inches to beginning of cusps. Centers of blades longitudinal-transverse-longitudinal units of 5 zigzags. Wings of blade longitudinal band-and-zigzags; width 1.25 inches, of which outer zigzags continuous; inner zigzags overlaid by pattern of blank triangles 0.5 inch high, bases touching at apices along median line, vertices alternately inward and outward; outer units 0.5 inch wide, alternately blank triangles as above, facing outward, and triangles composite of outward-facing small triangles in 5 rows; blank edge 0.25 inch.

Samoan: *Fa'alautaliga*, (*fa'a*, like; *lautaliga*, toadstool; *lau*, broad surface; *taliga*, ear).

Length, 27 inches, of which blade is 7.5 inches.

Shaft: Hexagonal; width of faces, 1.5 inches, except two edges 1.25 inches; at end, bevel 0.5 inch wide on median line at foot of lug; median line continuous throughout; lug triangular, vertical to plane of blade, perforated.

ANSP. 15743. Samoa. Dr. Reginald Spear, U. S. N. Plates IV, 4, 5; XII, a, b.

Blade: Width across cusps, 10.5 inches; width, 10 inches at 2 inches from end; thickness, 2.5 inches; plane faces.

Ornament: Conventional in a high degree; begins at 11 inches and covers part of shaft and all of blade; the designs are filled with chunam, and on one face the filling has been picked out of all the even-numbered transverse units.

HORNED CLUBS (NIFO'OTI).

Plate IV, 6, 7; Krämer, 210 *e*, 213–78 *a*, 216 *b*, 218 *a*. Provenience: Samoa.

The two clubs here presented are distinctively Samoan. It is only by reason of the paucity of material that they are set in the same type,

for the name is properly applicable only to the former. In their general resemblance it is to be noted that each has a shaft relatively short, a sharply distinct blade of considerable height between edges, and a clearly cut median angle along the length, a member of the extreme head arising in a cusp. They differ in the cusp, which in one type, the true *nifo'oti*, is retroverted and in the other is blunt; and they differ in that the type with retroverted cusp carries serration, while the other is of plain and blunt edges. Krämer's piece 216 *b* has serration on both edges, quite as if the retroverted cusp had been a fanciful development upon the common *talavalu* club, but in all other specimens the edge which carries the cusp is blunt and plain.

Krämer discusses the *nifo'oti* name. Generally, in connection with the unilateral form, he says in discussing the theme under the designation *talavalu*, yet also sometimes with the bilateral form, there is noticed on the smooth upper side a hook which serves the purpose of dragging out from the throng an enemy who has fallen in conflict in order to haggle his head off with the saw-teeth and the assistance of a stone axe. Such trophy heads have played a large part in Samoan warfare, even as recently as the war of the Tanumafili succession in 1899, when two officers of the United States Navy fell in battle and lost their heads. This hook is provided in the new bush-knives which the industry of the white men has supplied and has the awe-inspiring name of *nifooti* or tooth of death; yet on closer examination this resolves itself into *nifo'oti* or goat's horn, with which in its modern form it has considerable likeness.

Upon the two items of the explanation of the name and the modern steel knife I find myself under the necessity of traversing Krämer's decision. The Samoan uses *oti* in the death sense only in reference to mankind; for animals he employs *mate*. Nevertheless, the composite word *nifo-oti*, tooth-death, would signify to the Samoan the tooth which dies rather than the tooth which kills; it is essentially intransitive rather than transitive, as would be requisite to carry such an implication as we see in the tooth of death. Accordingly we lay this interpretation aside and adopt the slightly variant form *nifo-'oti*. Krämer interprets this as goat's horn and quite accurately as a mere matter of linguistics. But the goat was made known to Samoa by its early missionaries, and after its first introduction acquired so scant a hold in the islands that I can not now recall having seen in many years a single specimen. There is reason for this in the appetite of the Samoans: the flesh of the sheep is singularly repugnant to them; that of the goat must be even more disgusting. Furthermore, this interpretation of the name implies either that this type of club is very modern or, if ancient, that it went nameless until Samoans caught a passing glimpse of a domestic animal which they did not care to adopt into their own domesticity. Adopting the form *nifo-'oti*, I find its derivation from

the transitive verb *'oti* to cut; therefore the teeth that cut, as applying to the saw-teeth with which one edge is armed rather than to the retroverted cusp. The use of that cusp is not exactly what is suggested by our authority. After the head had been sawn off this spine was hooked into the jagged tissues of the neck and the trophy was therewith carried homeward in triumph. The modern knife, of which Krämer presents a picture on page 10, is simply the blubber-knife of the whalers.

Length, 27.25 inches, of which blade is 16.75 inches.

Shaft: At 7 inches, circumference 5 inches, flanging to 7.5 inches at the very roughly whittled end, flanging again to 6.5 inches at the blade; median angle prominent along blade, but absent in rounded haft; lower side of shaft ends toward blade in a point.

Blade: End, 6 inches high; flat surface on upper edge, 3.5 inches; rearward spike, 1.25 inches; upper edge smooth and rounded; lower edge, serration of 18 teeth, each cut clear from the others with a strongly angled median line extending back to the median angle of the blade; on lower edge of blade interval between teeth 0.5 inch, teeth grading from 2 inches next haft to 3.5 inches next end.

ANSP. 15744. Samoa. Dr. Reginald Spear, U. S. N. Plates IV, 6; XI, 25, 28, 29, 30, 32, 33, 34.

Ornament: Filled with chunam; faces not correlated in pattern but in arrangement; designs in 3 groups, one at each end of blade and one intermediate, all on upper half of blade.

Shaft, 11.5 inches; circumference, 5.5 inches at haft, decreasing to 4.5 inches next blade; lug semicircular, in plane of blade, perforated.

Blade: 18.5 inches on median line; end next shaft cut in arc 1 inch high to width of 3.5 inches on blade; maximum width at end of blade, 1.75 inches from median line to lower edge; 3 inches from median line to upper edge, at a point 2.5 inches from median line, the inner upward curve lies 1 inch toward the handle; no hook, but possibly broken off and trimmed over; edges round and smoothed, no serration.

ANSP. 14522. Samoa. Allen Irwin. Plate IV, 7.

Ornament: Zigzag in transverse bands, dentelles in minor lines; faces not correlated; chunam filling; on right face curves at both ends marked with dentelles, on left face with zigzag.

SICKLE TYPE (ULUHELU).

Plate VIII, *f*. Provenience: Niuē.

As has already been noted, ethnica from Niuē are comparatively rare in the museums. Here we have a single specimen of great beauty and very typical of the art of war in Savage Island. If this type has arisen in Niuē we find no difficulty in comprehending the utility of its distinctive form. We know that Niuē fought bitterly against the coming of any stranger whatsoever. There is but one spot in its precipitous circuit where a landing may be effected—a tortuous passage between rocks. In such a constricted landing the defenders upon the rocks would find themselves distinctly advantaged by a long and light weapon with cutting edges. We recall, however, weapons of somewhat the same character from the most remote Melanesia. In Wuvulu and

Aua of the Admiralty Islands Parkinson collected (Dreissig Jahre, 421, figs. 3 and 4) long clubs with sharp edges, but without the curve characteristic of Niuē. In the Louisiades we have seen long sword-clubs with highly specialized curved and angled heads which seem to bear a general family resemblance to the one under present examination.

Length: End, 9 inches; conical; tip, 0.25 inch diameter; circumference at base of cone, 4 inches, flanging to raised ring 5.5 inches circumference.

Grip: Length, 12 inches; cylindrical; circumference, 3.5 inches.

18094. Niuē. Pepper-Voy.

Blade: Quadrangular in section vertical to plane of flattened end; median angles continuous to tip, each face 1 inch wide along shaft; length, 39 inches, of which final 10 inches lie at angle of 20° from shaft; at point of divergence each face 1.5 inches wide; thickness 1.5 inches.

Ornament: End covered with neat reticulation of double punctate lines; grip, beginning of similar ornament; at point where grip cylinder merges into quadrangular blade rough service of sennit to give strength where the wood has checked in drying.

STAVES.

Plate II, *f*. Provenience: Nuclear Polynesia.

Although all the pieces in the museum are attributed to Fiji, this simple useful and ceremonial object occurs all through Nuclear Polynesia, and no specific characters are recalled. They play a large part in the public oratory on festive and diplomatic occasions upon the town greens, when trained and hereditary speakers arise to address the populace or to proffer honors or to present grievances to those who sit in high estate. They are scarcely to be classed with the weapons of war, yet in personal encounter they are not without their potency.

Length, 45 inches.

Circumference: At haft, 3.75 inches; at butt, 4.75 inches.

P 3148. Fiji. Oldman. Plates VIII, b.

Ornament: Grip, 9.5 inches; transverse straps of diamonds and triple border bands with picture of interlacing.

Apparently Maori.

Haft, rounded; butt, domed.

Length, 38.5 inches.

Circumference: At haft, 3.5 inches; at butt, 4.5 inches.

P 3781. Fiji. Voy. Plates VIII, c; XIII, 57.

Haft, rounded; butt, domed.

Ornament: Grip, 8 inches; transverse straps of diamonds and triple border bands with picture of interlacing.

Apparently Maori.

Length, 44.5 inches.

Circumference: At haft, 4 inches; at butt, 4.5 inches.

P 2494. Fiji. Clark-Oldman.

Ornament: Complete ornamentation blocked out, but poorly and partially executed; at grip 1 unit fine band-and-zigzag, 7 units band-and-zigzag much extended, all separated by straps of double band-and-zigzag.

Length, 41 inches.
Circumference: At haft, 5.5 inches, tapering to 1.25 inches at point.
Ornament: Complete ornamentation, except at end of haft. At haft, strap of diamonds between bands; 8 inches longitudinal band-and-zigzag extended with 1 unit basketry and 1 in which zigzag degenerates into serration; 5.5 inches sinistral spiral of serrations and diamonds, with three interruptions of modified palm-leaf design; 5.5 inches longitudinal band-and-zigzag interrupted by sinistral spiral of same interlaced; 5.75 inches dextral spiral of same; 5.25 inches same; 4.25 inches same; all separated by plain band.

P 3176.
Fiji.
Oldman.
Plates II, f; X, 15.

Length, 59 inches.
Circumference: At haft, 4 inches; near tip, 3 inches.
Ornament: Grip, 13 inches longitudinal band-and-zigzag, ending in strap of same.

P 2472.
Fiji.
Clark-Oldman.

A proper conclusion of this chapter is the presentation of a few notes which tend to evaluate the sources of the museum pieces.

C. D. Voy is the collector of a large number of the specimens. From personal acquaintance with Voy and from watching him at his work of collection in the South Sea it is possible to vouch not only for his honesty in the labels, but in addition for his accuracy in running down the least suspicion of error in attribution. It is not sufficient that a specimen is procured in Levuka, whether from Fijian or from white trader, to establish it as in itself Fijian. In the modern times there has been a great drift of such objects out of their proper surroundings. Voy has been observed to run down a suspicious object and to continue his quest until he was absolutely certain as to its provenience. He had some acquaintance with the language of Tahiti; in Nuclear Polynesia he had to rely on the services of interpreters, who prove frequently a poor dependence; but it was his custom when prosecuting his research into doubtful pieces to call in the assistance of the missionaries and thus to make sure that he was accomplishing his end. His manner with the islanders was truly a winning one; he was able not only to bargain for objects in sight, but to unearth some most cherished pieces and in the end to add them to his collection. His assignments to source are so certain that we are almost invariably to accept them as definite. Most of the pieces of his collection in the museum are the gift of Dr. Pepper; a few are found with but the simple note that they were gathered by Voy.

Another considerable part of the specimens is credited to Clark through Oldman, or to Oldman alone.

E. S. Clark, the collector, is judged here by his specimens. All that I can recall of him is that there was a collector of that name in the Pacific later than Voy, but going over the same ground; there is therefore not the same opportunity to evaluate his accuracy from personal observation. I consider him to rank under Voy, and in several pieces

I have felt justified in correcting his attributions. This is not to be reckoned against his honesty in collecting and in labeling; it simply means that he was not so keen as Voy in suspicion of an object and not so zealous in establishing its provenience. The objects collected by him were procured by purchase from Oldman, the London dealer in ethnica.

Many pieces appear without further record than that they were bought from Oldman, the collector's name not having been handed down with the objects. Oldman had great experience, a clear judgment in the affairs of the South Sea, and was notably particular in his dealings. Of course the attributions which rest solely on the word of any dealer are of less weight than those which carry the name of the collector; yet of the objects in this collection which are designated solely by the name of Oldman there is an interesting group in which an added element of reliability is found. It appears from several of the labels that at some time not definitely indicated an exhibition was held in London of material which might serve to illustrate the work of missionaries among the heathen by the showing of articles familiar in the life of the peoples to whom they were seeking to bring the light. Many of these Oldman objects were contributed for display in that exhibition; some few were accumulated by Oldman from that collection. In each case it is fair to assume that they passed under review of missionaries who were familiar with the several countries and that wrong attributions would thus be corrected.

Names of collectors less frequently appearing in the museum records are L. Myers through Oldman, Huston, Donaldson, Rust, and James Kingsbury. In the absence of information as to these individuals it is impracticable to evaluate their trustworthiness. Donaldson is responsible for the attribution to Ysobel in the Solomons of a pandanus club of Fijian type; Clark is responsible for the attribution to New Guinea of a wheel-headed missile club of Fijian type. Such cases will form the theme of the concluding chapter. James Kingsbury appears responsible for several pieces in this and other museum groups. It seems probable that he picked up these objects as curios in ship-chandlers' shops on the waterside, the junk of seafaring men; therefore it is only through accident that their records of source are accurate. In many of his labels he seems to regard Australia and the South Sea Islands as synonyms, and there occur not only Polynesian pieces assigned to Australia, but even so distinctive an object of Australian culture as the *womerah*, throwing-stick, erroneously credited to Polynesia.

A few of the pieces were obtained from W. H. Miller by gift. He was in possession of a small museum of unassorted curiosities in Media, the shire-town of Delaware County, Pennsylvania. The objects were devoid of the names of collectors, whereby the source might be checked

up. The attributions appear in the main to be accurate, but they are not to be employed in the settlement of moot points of provenience.

Of three pieces in the museum of the Academy of Natural Sciences of Philadelphia, two were collected by Dr. Reginald Spear, United States Navy, one by Allen Irwin. The greatest trust may be reposed in both these collectors.

It is not now so very long that museum direction has become a science, with its systems of record and display. Formerly a museum was a mere collection of curiosities in cases for idle visitors to gaze upon. Dating from that not very remote epoch, some of these specimens carry yet the evidence that they had been varnished to look well. Many others are in the museum merely because they came into the museum; no record was preserved of their source or collector. It is a great thing that they have been preserved at all. In the present study their provenience has been carefully examined.

CHAPTER III.

DIMENSIONS AND STRUCTURAL DETAILS.

We think in terms of feet and inches; some of us have acquired the greater decimal facility of the meter and its parts; but we postulate in all the acts of our life a standard of measurement which we regard as absolute; at least it is fixed for all of our practical purposes. But in these studies of the artifacts of Nuclear Polynesia we are to find a tangle of problems in establishing the units of measurement. We may be sure that there is a certain general agreement of measurement; to those of us who have shared the life of these primitives in culture there may be a certain rough and ready familiarity with the principles of metrology which obtain among folk to whom the inch and the foot and the yard and the fathom yet function in the personal measurement, and at the same time there is no definite standard preserved, as at Greenwich or at Washington, but every man is a standard unto himself.

The method which we find it incumbent to pursue in dissecting out from the dimensions of these many clubs the system of measurement employed by the clubwrights may be arid in its earlier stages; mere columns of figures are somewhat wearisome, yet we can not proceed in safety to the derivation of any conclusion until the data are properly ordered for examination. We shall begin, therefore, with that first dimension which appears almost absolute—the length of the pieces. It is, of course, not quite accurate to speak of this dimension as absolute; it is really conditioned by the purpose of the weapon; the missile clubs and certain of the maces are normally short, and several of the larger types are reproduced in smaller form for single-handed use. Yet within the limits of convenience of their deadly purpose this dimension of the clubs is fairly enough to be described as absolute; it establishes the basic measurement, and the other dimensions of width of blade and the like are functions thereof still more remotely differenced by considerations of grace in the art sense and of weight in the practical sense of utility, the latter functions being largely out of our investigation. An element of uncertainty engages with this prime dimension of length over all; our comparison would be far more accurate if we could establish it upon a base of effective length, that is to say, upon the length from the end of the shaft to the point which strikes the object. This we are not able to determine, for there is great variety. For the billets we may properly assume that effective length equates with length over all. Because of a specific trick of fence the same holds true of the pandanus club, yet that dimension must be measured as approximately the chord of an irregular arc. In the rootstock clubs it is apparent that effective length is less than total length, yet the difference is not immediately apparent and is not to be measured. In the lipped clubs we

take the length along the lower curve from haft to head and disregard the length from haft to lip, which sometimes agrees and sometimes varies. Recognizing this element of uncertainty, we now assemble in table 36 the length over all for the pieces which have been exhaustively studied in this work. In the first column we note the length to the nearest quarter inch; in the second column we sum the number of pieces for each inch and the fractions thereof; in the third we note the pieces from which the measurements derive.

TABLE 36.

Length (inches).	No. of pieces.	Piece No.	Length (inches).	No. of pieces.	Piece No.
14.5	1	3792 *b*	40.5	9	3792, 2279, 2283, 3792 *c*, 2473, 3184, 3782 *a*, 2489
15	2	2467, 3785 *a*			
16	....	3785, 2469, 2468, 3784 *a*	41	....	3174, 2278, 2284, 3361, 2267, 2485, 3176
16.25	....	2462			
16.5	....	2461 *a*, 2461	41.5	14	3780 *e*, 3358, 2261, 3790 *b*, 3782 *b*, 3181, 3100
16.75	10	2466, 3188, 3786			
17	....	2465, 2463, 2460, 3784	42	....	2276, 3790 *a*, 2266, 2269, 2264, 2257 *a*, 3182 *a*, 3144, 3184, 3176 *a*, 3780 *d*, 2486, 3179. 2475, 3180, 3182 *b*
17.25	2	3188 *a*			
22.5	1	3788 *a*			
23	1	2495			
24.25	1	2263	42.25	....	3175, 2482
25.5	1	3792 *a*	42.5	21	3172 *b*, 3173, 3143
27	....	3100 *b*, A 15743	43	....	2287, 3360, 2481, 3783, 2480, 2479
27.25	3	A 15744			
28	....	3099	43.5	....	3099 *a*, 3357, 2491, 2262
28.25	2	3789	43.75	12	2493, 3782
29	1	2497	44	....	2273, 2285, 2271, 3145, 3183, 3185, 3791
30	1	A 14522			
31	....	2280, 3100 *a*	44.25	...	2277
31.5	4	3788, 3177	44.5	10	2494, 3782 *c*
33	1	3780	45	...	3303 *a*, 3148, 3355, 3356, 2496, 3186, 1974, 2488
34	....	2268, 2500, 2275			
34.5	4	2265	45.25	....	2499
35	....	2281, 3791 *a*, 3178	45.5	10	2272
35.5	4	3178 *a*	46	....	3146, 3780 *c*, 3780 *a*, 2484, 3790
36	....	2498, 2478, 2487, 3186 *c*	46.5	6	2286
36.5	5	3791 *c*	47	4	2259, 2291, 3187, 2252
37	....	3359, 2492, 3787, 2270	48	1	2258
37.5	5	3362	49	....	3172, 1975, 2490
38	....	3791 *b*	49.5	4	2690
38.5	5	2483, 3186 *d*, 3781, 3186 *a*	50	2	3172 *a*, 2260
39	5	3147, 2274, 3174 *a*, 2474, 3186 *b*	52	2	2257, 3182
40	....	2476	53	1	2256
			59	1	2472

For purposes of summation I have grouped these figures by hand-breadths. This is not wholly empirical, for I have observed in Samoa and in Rotumā, and probably elsewhere, although my recollection of the incident is not so clear, men measuring off a stick of timber by successive hand-grasps. The method is still practiced by the savages of our own culture, as will be apparent to any one who will take the pains to observe boys in the next vacant lot clutching a baseball-bat

to determine who first shall pick his first player—an interesting persistence of the primitive. This summation now appears in table 37 with a showing of the club types for each handbreadth.

This conspectus immediately declares the standard lengths of the different types of club. The missile *ula* lies altogether within a single handbreadth. The lipped clubs are standardized in the three handbreadths from 36 to 44 inches, and one of the pieces which lies outside the standard is short by no more than a single inch; the other with a length of 23 inches is an unusual toy. The billets show a standard length within 3 handbreadths just one unit longer—39 to 47 inches—

TABLE 37.

Handbreadths.	No. of pieces.	Ula	Mace.	Talavalu.	Lipped.	Crescent.	Billet.	Rootstock.	Pandanus.	Axe-bit.	Lapalapa.	Paddle.	Serrated.	Mushroom.	Horned.	Staff.	Carinated.
12 to 14	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15 17	17	17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18 20	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21 23	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...
24 26	2	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...
27 29	6	...	...	...	...	...	1	...	...	...	1	...	1	2	1	...	...
30 32	5	...	...	1	...	...	2	...	...	...	1	...	...	...	1	...	...
33 35	9	...	...	1	1	1	2	...	...	...	3	1	...	...	...	...	...
36 38	15	...	...	...	4	1	1	1	2	2	1	1	1	...	...	1	...
39 41	28	...	2	...	6	...	5	4	...	1	2	4	1	...	...	1	2
42 44	43	...	...	1	4	...	7	8	4	...	6	8	2	...	...	1	2
45 47	20	...	...	1	...	...	4	3	1	...	...	4	3	...	...	1	3
48 50	7	...	...	...	...	...	1	...	...	...	2	3	1	...	...	...	...
51 53	4	...	...	...	...	...	...	...	1	...	...	2	1	...	...	...	...
54 56	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57 60	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...

and the rootstocks have the same standard measurement; 6 of the billets are under standard with a range of a foot; only 1 of the rootstocks falls below and that by no more than a half inch; the one billet which exceeds standard does so by but 2 inches. The *lapalapa* do not standardize so accurately; in fact, there seem to be two characteristic lengths—one just under our yard, the other some 9 inches longer. The paddle clubs correspond to the billet and the rootstock in standard length, but while the billet falls short of its standard more commonly than overpasses it and the rootstock has the same character, the paddles exceed standard far more frequently than they come short.

To comprehend these several standards for this type or for that in the clubs, we must comprehend the system of measurement employed by the clubwrights. Chance is rigid in the affairs of men; we may seem to see a fortuitous collection of feet and inches in the use of men who know not the foot or its duodecimal portion, who know not its

multiples as they have arisen out of our convenience. Yet we may feel perfectly well assured that the clubwrights have not wholly fortuitously come into agreement upon 14 handbreadths as the standard of length for their lipped clubs and upon 15 for the billets, the rootstocks, the pandanus, the *lapalapa*, and the paddles. It is now incumbent upon us to establish the system of such measure as has been found within the power of these primitives.

Every man is his own tape-measure before the establishment of a bureau of standards. Our own speech is filled with reminders of such a primitive stage as we are to find uncorrected in the South Sea; we have the foot, the span, the handbreadth, the fathom; the French give us in *pouce* the thumb measurement of the inch, which we obtain by duodecimal division of the foot. Less need has arisen in Polynesian life for units of measurement; no need at all has arisen for correlation of such units as have come into being. From the Samoan we derive the following list of vocables which designate measurements:

aga	the span.	**ngafa**	fathom.
laui'a	finger tip to wrist.	**fatulogonoa**	fingertip to opposite elbow.
vaefatafata	half fathom (literally space to breastbone), yard.	**'umi**	ten fathoms.

From a group of American collegians between 5 feet 9 inches and 6 feet 2 inches, which corresponds fairly well with the Polynesian stature, I have equated these and a few other practical measurements in table 38. In the first column I have set down the mean of the measurements; the second column gives the same measurements when functioned by a constant condition which will later be explained.

TABLE 38.

	Full (inches).	Handing (inches).
Fathom	72	.....
Finger-tip to elbow	19	14
axilla	29	21
sternum	36	30
axilla opposite	43	39
elbow opposite	53	46
wrist	8	.....
Handbreadth	3.5	.....
Span	10	.....

The measurements in the second column are respectively shorter than the maximum measurements by 5, 8, 6, 5, and 7 inches. The function is in itself constant, but its value is subject to position variation. This column presents the effective measurements. The islander has not hit upon the idea of taking off his working measurements on a cord and of employing that as a gage. He takes in his hand a stick

of wood from which he is to carve a club; he grasps it in his fingers with the end approximated to his palm; he stretches it across his body. and marks the point upon the stick that corresponds with the particular corporal unit which custom has decided upon for the length appropriate to the particular type of club which he is to carve. In taking these control measurements under conditions which have come under observation in the islands, it became at once apparent that there is physical reason for the variety in the magnitude of this factor which is constantly applied; it is noted that the billet employed in these tests was a billiard-cue held by the butt with a circumference of 5 inches. When we attempt to adjust the elbow-measurement to the list of club-measurements, we note that its maximum of 19 inches is too great and its effective measurement of 14 inches is too small. The clubs to which this unit might apply are all of the *ula* type—a large ball with a slim handle, carved from the root-knob of a sapling. After trimming up the rootlets it is natural for the clubwright to hold the ball in his hand and to take the stem measurement up his arm as far as the elbow. But the clutch upon the root-ball is quite other than that which he will employ when holding a somewhat heavy billet without the support of the forearm which will be effective in the case of the lighter *ula* sapling. The majority of the *ula* are found in the sixteenth inch of length; test of the specimens has shown that this length is exactly offered in the fashion in which the clubs are held for measurement toward the elbow.

TABLE 39.

	Inches.	Pieces.
Elbow unit...	(19–14)	18
Axilla.....	(29–21)	10
Sternum.....	(36–30) 38–30	29
Contra-axilla .	(43–39) 44–39	71
Contra-elbow.	(53–46) 53–45	31

The reduced handing measurements are not in the least prohibitive of the maximum measurements of each unit, for clubwrights have been observed measuring their raw lumber when held in the hand of an assistant or apprentice. We are justified, therefore, in taking the two values of each unit as limital. Thus we are able (table 39) to classify the clubs by linear units of this corporal sort.

Thus we see that all of these clubs are governed by a generally established system. The small and very elegantly executed mace (3792 *b*) is anomalous; it is the shortest of all these pieces (14.5 inches), yet it has a haft-girth corresponding to a length and weight much greater. Because of its small size and evident effectiveness, one is tempted to speak of it as a pocket weapon until it is recalled that costume in the Pacific has not yet arrived at marsupial convenience.

The next group of measurements which we shall examine deals with circular measure in its earliest phase, for the relation of the radius and the circumference are unthought of as yet and the constant π lies ages distant. The savage of the Pacific measures such circular dimen-

sions as may enter the field of his convenience by nature's own calipers—the thumb and fingers—just one more of the advantages which the opposable thumb gives man over the ape. This series of measurements has absolute value at one point of the weapon—that part of the haft which the hand clutches to render it effective in the blow and secure against the shock of impact. Accordingly these measurements have been recorded in table 40 in terms of circumference or perimeter, for that is the effective system of units.

TABLE 40.

Girth (inches).	Piece No.
2.75	2467, 2462, 2461 *a*, 2465, 2497
3	3785 *a*, 2469, 3785, 2466, 2463
3.12	2461
3.25	2468, 3786, 3188
3.5	3784 *a*, 2460, 2263, 2268, 2498, 3359, 3781, 3303 *a*, 3172, 3172 *a*
3.75	3784, 3188 *a*, 3788 *a*, 3789, 2280, 3788, 3358, 2276, 2277, 3780 *e*, 3148
4	3792 *b*, 2495, 3100 *a*, 3177, 2500, 3362, 3791 *b*, 3174 *a*, 3147, 2274, 3174, 2261, 3790 *a*, 3172 *b*, 2287, 2262, 3357, 3099 *a*, 2285, 2273, 2494, 3355, 3146, 2258, 2472.
4.25	2265, 2478, 2487, 3792, 2279 2278, 2264, 2266, 2269, 3145, 2271, 3356, 2286, 2259
4.5	2275. 2281, 3178 *a*, 3186 *c*, 3186 *d*, 2483, 2283, 3792 *c* 2284, 3790 *b*, 2257 *a*, 3182 *a*, 3175, 3173, 3360, 2496, 2499, 2272, 3780 *c*, 2291, 1975, 2260, 2257, 3182, 2256
4.75	3792 *a*, 3791 *a*, 2476, 3361, 3176 *a*, 3184, 3144, 2481, 3783, 3782 *c*, 3187
5	3100 *b*, 3099, 3780, 3178, 3791 *c*, 2492, 3184, 2473, 2267, 3782 *b*, 3179, 2486, 3780 *d*, 2482, 2480, 3183, 3186, 3780 *a*
5.25	3787, 2474, 3782 *a*, 2485, 3181, 3143, 2493, 2252
5.5	A 14522, 3176, 3100, 3180, 2475, 2491, 3782, 3791, 3185, 2484, 2490, 2690
5.75	3186 *a*, 2479, 3790
6	2270, 3186 *b*, 3182 *b*, 1974
6.5	2470
7	2488
7.5	A 15744, 2489
8.5	A 15743

The nature of the clutch of the hand upon the haft of the club remaining constant until receipt of a stunning blow and the relaxation of the warrior's fingers, we can conceive of no grouping of these recorded circumferences except in so far as the single-handed grip differs from that in which both hands are employed, a difference somewhat measurable by the length and thereby conditioned weight of the piece. We can readily comprehend this difference. In the single-handed club the fingers must have such a firm clutch that the haft is held in complete approximation to the palm and fingers and the opposition of the thumb serves to anchor the clutch. Where both hands are used it is not necessary to have the same completeness of clutch, for each hand supplements the other in that the two clutches face one another. Experiment shows that the critical point of this double

clutch functions in terms of the circumference of the object held. If each hand spans one semicircumference of the object, the force of the clutch is conditioned by the amount of opposing force which the thumb and fingers are capable of exerting along the diameter of the piece. When the clutch engages with less than a semicircumference the clutch is loose; in proportion as it engages with more of the other semicircumference it becomes stable and effective. We shall expect to observe these conditions in the next tabulation of the clutch data, in which for each of the units of circumference we set down in table 41 the type of weapon from which the measurements derive.

TABLE 41.

Girth of haft (inches).	No. of pieces.	Ula.	Mace.	Talavalu.	Lipped.	Crescent.	Billet.	Rootstock.	Pandanus.	Axe-bit.	Lapalapa.	Paddle.	Serrated.	Mushroom.	Horned.	Staff.	Carinated.
2.75	5	4	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
3.	5	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.12	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.25	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.5	10	2	...	...	...	1	...	1	...	...	2	2	1	...	...	1	...
3.75	11	2	...	2	...	...	1	...	...	...	3	1	...	1	...	1	...
4.	25	...	1	1	2	1	3	...	...	1	3	8	1	...	...	2	2
4.25	14	...	1	...	...	...	1	...	1	1	3	6	...	...	...	...	1
4.5	25	...	1	2	1	1	1	2	2	...	3	6	2	...	...	...	4
4.75	11	...	1	...	2	...	2	3	...	1	...	...	2	...	...	...	...
5.	18	...	...	...	3	...	8	3	2	...	2	...	...	...	...	...	...
5.25	8	...	...	...	2	...	2	2	2	...	...	...	...	...	...	...	...
5.5	12	...	...	...	3	...	3	3	...	...	...	...	1	...	1	1	...
5.75	3	...	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...
6.	4	...	...	...	1	...	...	1	1	...	1	...	...	...	...	...	...
6.5	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
7.	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
7.5	2	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
8.5	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...

We derive very scanty information from this tabular conspectus of hafts of the several club types. It is at once apparent that the *ula* missile clubs afford us all the smaller measurements up to 3.25 inches. A solitary exception is serrated club 2497, which is distinctly single-handed, even if not a dance toy. The two units 3.5 and 3.75 carry 4 larger *ula* and the undersized pieces of several other types. At 4 inches with 25 pieces, at 4.5 inches with 25 pieces, at 5 inches with 18 pieces, and at 5.5 inches with 12 pieces, we seem to find some dimensions roughly standardized as stock patterns. Bearing in mind the constancy of π as meaning that even an inch of increment in girth results from only an addition of one-third of an inch in diameter, we feel justified in assembling other units about these decisive points from the half inch next preceding to include the quarter inch next

following the even inch of girth. We then find the number of pieces for each of the standardized girth dimensions (table 42).

The largest of these measurements, 8.5 inches, occurs upon a Samoan mushroom club (ANSP 15743), with hexagonal section. It seems rather a ceremonial piece than an effective weapon.

For purposes of comparison I append a few measurements of objects in our own familiar use which may serve to adjust to our comprehension somewhat better than figures the girth of these weapons.

TABLE 42.

Girth of haft (inches).	No. of pieces.
3	14
4	60
5	62
6	19
Over 6	5

In this list the end of the billiard-cue and the loom of the oar extend a resemblance more specious than real; one does not hold his cue with a full grip—not if he counts upon a good carom—and in the oar, when both hands are applied to the loom, they are used in the same sense and not in opposition, as in the double-handed clubs. In my own case (span 10 inches) I find that with the thumb and middle finger I can just succeed in making a complete grip over a billiard-ball, but that the muscular strain is such as to make that an impossible grip when one introduces the element of weapon utility; my effective complete grip is 6.5 inches.

	Inches.		Inches.
Italian rapier	2.75	Tennis racket	5 to 5.37
Walkingstick	3	Hockey stick	4
Broomhandle	3	Golf club	2.5
Billiard cue	4.5	Bat:	
Handle of shovel	4.5	Grip	3.5
Loom of oar	6	Flange	5.5
Axe helve:		Domed end	7
Lower grip	4	Length	31 to 34
Upper grip	3.5	Police billy	3.75

Tested upon a billet of exactly 9 inches girth, I find that with a single-handed grip I can hold the weapon with a gap of 1.5 inches between fingers and opposing thumb, but that this grip is not sufficient to hold up under the force of a blow. In the double-handed grip, however, the billet of this girth is quite satisfactorily clutched. From the Mycenean weapons in the museum, all pieces intended for use with the single hand, we extract the data in table 43 as to haft.

We shall next take up for more complete examination the end of the haft, the increase in the girth of the haft into a flange or a taper as conditioned by the space over which that increase is extended; the shape of the end, its added members if any, and its perforation. Some of these details can amount to no more than ornament; others subserve some more or less useful end and add to the value of the club at one

stage or another of its employment. We sense two material considerations in this theme, one qualifying a certain type of weapon and not certain others, the other having a geographical element of application, or rather one of culture, which we may most conveniently describe in the terms of geography.

The presence of the flange tends toward greater security of the grip in the not infrequent case that the weapon is grasped by the opponent and effort is made to wrest it from the hand, and a very slight increase in circumference is quite as effective toward this security as a great one. The amount of this increment of circumference is so irregular that nothing can be deduced from an examination of the figures. It ranges from so scant a sum as 0.25 inch to 2.5 inches; from the light and slender missile *ula* to a very heavy horned club. Yet the increment exhibits no relation to the size and weight of the pieces. This minimum increment and the scarcely differentiated 0.5-inch increment occur not only in the *ula*, but in clubs so heavy and two-handed as the billet, the *lapalapa*, the paddle, and the mushroom. On the other hand, while one-third of the billets show the flange, not a single one of the root-stocks carries it; yet they are of the same provenience and correspond in shape, weight, and finish. We are led to the conclusion that this detail arises from the cosmetic side. In the very nature of the art of fencing the *ula* is not exposed to the risk of being wrested from the hand; it would have been thrown upon its deadly errand long before the contestants came to grips; and if it were held until it could be seized there would be no purpose in clinging to it. This is confirmed by the other details of treatment of this piece. The simple *ula* with the ball head show no instance of flanging; the more decorated wheel type yields 3 and the highly ornate patterned-head type yields 4 cases of the flange. The greatest frequency of the flange is found in the billet, the *lapalapa*, and the paddle clubs; yet these are characteristically two-handed weapons and the security which a flange might offer need not be considered when regard is had to the greater clutch of two hands gripping the club, where torsion and pull may be opposed by the greater leverage thus obtainable.

TABLE 43.

Girth of haft (inches).	No. of pieces.
2.75	4 (sword), 6 (dagger).
2.87	5 (dagger).
3	7, 8 (daggers).
3.25	1, 3 (swords), 9 (dagger).
3.5	MS 5296, 2, MS 5301 (swords).

When, however, the flange is studied as a culture distinction we come to more positive values. In Samoa it occurs in 20 out of 33 pieces, in Tonga in 21 out of 33, in Fiji in but 13 out of 73 pieces, and more than half of the flanges occurring in a type of club not found elsewhere in Nuclear Polynesia. These figures yield 60 per cent respectively for the two Polynesian communities, and for Fiji but 18 per

cent, or less than one-fifth. This gives us good ground for regarding the flange as characteristic of the Polynesian art of the clubwright rather than of the Melanesian Fijian. Its extension to Fiji will arise for later consideration when we have succeeded in setting apart other distinctions of the two race cultures.

In our consideration of the treatment of the end of the haft we shall obtain an advantage by setting the information forth in tabular form (table 44), whereby the end of convenience in comparison may be served.

TABLE 44.

Type.	Total.	Distribution.				Flange			Cupped.			Cap.			Domed knob.				Lug.*			Perforation.											
																						Samoa			Tonga.			Fiji.					
		Samoa.	Tonga.	Fiji.	Rotumā.	Samoa.	Tonga.	Fiji.	Samoa.	Tonga.	Fiji.	Samoa.	Tonga.	Fiji.	Samoa.	Tonga.	Fiji.	Rotumā.	Samoa.	Tonga.	Fiji.	Transverse.	Diagonal.	V.	Transverse.	Diagonal.	V.	Transverse.	Diagonal.	V.	Inverted V.	Through stem
Ula	17	..	..	17	..	..	..	7	..	..	12	..	..	0	..	..	..	..	..	..	0	..	..	..	..	..	..	0	6	0	2	1
Mace	4	4	..	..	..	1	..	..	0	..	..	0	..	..	0/1	..	..	..	0	..	..	0	0	0	..	..	..	..	..	..	..	..
Talavalu	5	5	..	..	..	5	..	..	0	..	..	0	..	..	0	..	..	..	2/2	..	..	4	0	2	..	..	..	..	..	..	..	..
Lipped	15	..	..	15	..	..	..	2	..	..	0	..	..	4	..	..	9/0	..	..	..	0	..	..	..	..	..	..	0	2	0	0	1
Crescent	3	..	3	..	..	0	..	..	0	..	..	2	..	..	0/1	..	..	..	..	0	..	..	..	..	0	0	0	..	..	..	..	..
Billet	23	..	5	18	..	3	4	..	2	7	..	0	0	..	0/1	0/6	..	..	..	0	0/2	..	..	..	0	1	0	2	1	2	0	..
Rootstock	16	..	1	16	..	0	0	..	0	0	..	1	0	..	0	0/2	..	..	..	0	0	..	..	..	0	0	0	0	0	0	0	..
Pandanus	8	..	..	8	..	..	..	0	..	..	0	..	..	6	..	1/0	..	..	..	..	0	..	..	..	..	..	..	0	1	0	1	..
Axe-bit	3	..	..	3	..	..	..	0	..	..	1	..	..	0	..	0	..	..	..	..	0	..	..	..	..	..	..	0	0	0	0	..
Lapalapa	17	12	2	0	1	9	2	..	0	0	..	0	0	..	0	0/1	..	0/1	4/10	0	..	9	0	5	1	0	0	..	..	..	..	..
Paddle	23	..	22	..	..	..	16	..	..	0	..	..	0	..	..	0/8	..	..	..	9/4	..	..	..	..	13	0	5	..	..	..	..	..
Serrated	10	1	0	9	..	0	..	0	0	..	0	1	..	6	0	..	4/0	..	0	..	0	0	0	0	..	..	..	0	1	1	0	..
Mushroom	2	2	..	..	..	1	..	..	0	..	..	0	..	..	0	..	..	..	2/0	..	..	2	0	0	..	..	..	..	..	..	..	..
Horned	2	2	..	..	..	0	..	..	0	..	..	0	..	..	0	..	..	..	0/1	..	..	1	0	0	..	..	..	..	..	..	..	..
Carinated	7	6	..	1	..	3	..	0	0	..	0	0	..	1	0	..	0	..	2/2	..	0	4	2	0	..	..	..	0	0	0	0	..
Staff	5	..	..	5	..	..	..	0	..	..	0	..	..	0	..	..	0	..	..	..	0	..	..	..	..	..	..	0	0	0	0	..
Total	..	32	33	73	1	20	21	13	0	2	20	1	3	17	0/1	0/6	11/6	0/1	10/15	9/4	0/2	20	2 29	7	14	1 20	5	2	5 13	3	3	2

*Vertical 10, plane 21, tranverse 36, diagonal 8, V 15, inverted V 3, stem 2.

Unless otherwise distinguished, the ends of clubs are cut square across, sometimes with a sharp right angle to the length of the shaft, sometimes blunted by use, other times rounded by the cutting tool. This does not appear a distinctive character, but there are other forms which call for attention.

The first is the cupping of the end, a more or less shallow depression occupying all but a narrow rim at the edge. This is distinctively Fijian; it is not found at all in the Samoan material and but twice in Tongan pieces. In Fiji it occurs in two-thirds of the missile clubs, once decoratively at the end of an axe-bit and on 7 billets, and in this last type the two pieces 2488 and 2490 show this element so clearly

advanced for purpose of ornament that we may omit them from the discussion. It does not lack significance that we find the maximum occurrence of this device in the *ula*—clubs which are to be thrown with peculiar skill. The assistance which the saliva affords to the man who secretes it is matter of observation in the navvy's grasp of his pick or in the spit-ball of baseball. I have already made mention of the moistening of the ball of the thumb in the throwing of the *ula* and have suggested its use in forming a pneumatic junction. The occurrence of this cupping in the billets in Tonga and Fiji can be nothing more than decoration, for these clubs are held as is a baseball-bat. We record the note that the cupped billets are not such as display the flanging of the haft.

A neat finish is given to certain clubs by the employment of a flat cap carved with rounded edges extending beyond the shaft by as much as a quarter or a third of an inch. In addition to its effect as ornament, this cap thus projecting affords more security to the lower grip, where naturally the countereffect of impact is most manifest.

In Samoa this cap occurs but once, in the single instance of the serrated club, which otherwise is regarded as distinctly a Fijian type. In Tonga its single occurrence is in a rootstock, likewise a Fijian type. The two Tongan instances found upon crescent clubs may perhaps derive from the Fijian caps, but they have gone a long way in progress. These caps are very carefully squared; in 3186 *d* the square is set in such wise that a diagonal lies in the plane of the blade, in 2263 the edges are thus set. In Fiji, where this addition is found on very nearly a quarter of the clubs, its use is restricted to the lipped, the pandanus, and the serrated clubs; a solitary instance occurs in a carinated club which itself is the solitary occurrence of this Samoan type.

In the next compartment of table 44 we find two elements. In the section above the diagonal lines note is made of a similar knob with sharply distinct edges next the shaft of the same width, as in the case of the cap and a highly domed form carved thereupon; in the section below the diagonals a domed finish of the end, but without the marginal projecting edge. Of the latter finish we observe a single instance in Samoa, a single instance in Rotumā, and 6 in Tonga, of which only one occurs in a type of club, the billet, common to Tonga and Fiji, yet the billet is the only club in which we find this finish in Fiji, to the number of 6 instances. The domed cap is found only in the Fijian weapons—9 of the lipped clubs, 1 of the pandanus, and 4 of the serrated—that is to say, in about half of the lipped and serrated type and in but 1 out of 8 pandanus.

The next element of the end of the shaft is the very important unit of the lug perforated so that the piece may be suspended by a becket of sennit. This may lie in the plane of the blade or vertical thereto, and we find a single instance in the Samoan *talavalu* 2275, where the

lug is diagonal and midway between the two critical positions. In two cases—the Fijian billet 3100 *b* and the Tongan paddle 3360—the lug has become merely an unperforated knob, which in the latter instance is vertical to the blade. One club shows a lug which has been so much worn in use as to exhibit no specific characters. In table 44 the lugs vertical to the plane of the blade are recorded to the left of the diagonal, those in its plane to the right. In general, the two forms are just about numerically of the same frequency—19 vertical and 21 in the blade-plane. But in the examination along the line of provenience we find less concord. Fiji gives us but two lugs, both on billets, and in this club-shape there is no plane of blade to serve as a base of reference. In our Tongan material the lug is found only on the paddle clubs and on about half of the whole number of these pieces; the vertical setting is twice as frequent as the other. In Samoa the number of the lugs is almost twice that of the occurrence of this element in other archipelagoes of this province; they are found on clubs of 5 types, all of which are distinctively Samoan. The *talavalu* and the carinated clubs show the same record as to the setting of the lug—as many in one direction as in the other; the mushroom and horned types very nearly cancel one another and may be left out by reason of this and of the small number of record. This reduces the study to the *lapalapa* type as critical for this unit, just as the paddle proves critical for Tonga. We have recorded among the *lapalapa* 4 vertical lugs to 10 plane; among the paddles, 9 vertical to 4 plane; of the 17 pieces of the *lapalapa* type, 14 have a lug of some sort; of the 23 paddles 13 have lugs. From this we derive the conclusion that the lug belongs to the Polynesian and not to the Fijian culture; that among the peoples of Nuclear Polynesia Samoa is the source of this useful ornament; that the Samoans prefer it twice as often in the plane of the blade, and that the Tongans reverse this choice and prefer it twice as often vertical to the plane of the blade. Assuming the spread of the device from a Samoan source and its reversal in transit, we find a most interesting memorandum accounting for a similar reversal in another culture unit. Swimming from Fiji to Samoa, with the important rule of tattooing, the Samoan diligently recited his errand: "tattoo the women but not the men, tattoo the women but not the men." He was unfortunately capsized by a mighty wave and his brain whirled for the moment; when he came gasping to the surface he resumed his mnemonics, "tattoo the men but not the women," and thus brought the rule ashore, and thus the custom is reversed to the present day. This has value in the present instance as a recognition by the islanders that a reversal of custom is critical of its transmission to another culture field.

These lugs fall into four type-forms, and each form exhibits a variety as to whether it extends the full width of the head or is merely central

and not thus extensive. This variety has been omitted from table 45; it will be found noted in the detailed record of the individual pieces.

The difference between semicircular and triangular is not by any means well-defined, for it is evident that lack of care in the carving will transform any semicircular lug into the triangular form by making its sides straight rather than curvilinear. In the same way it is clear that the pentagonal and square lugs may evolve from slips in the carving or from trimming up lugs which have been shattered by the accidents of use, gentleness not being particularly characteristic of club play. In the carinated club 2285, we find a most unusual position for a lug in this province; in addition to the lug in the usual position a second is carved upon the shaft near the head.

TABLE 45.

Semicircular lug.
  Vertical:
    Samoa, 3172 *a*, 3172 *b*, 3178 *a*, 3789
    Tonga, 3355, 3359, 2261, 2260
  Plane:
    Samoa, 2272, 3788, 2280, 2273, 2276, 14522
    Tonga, 3173, 3174, 3358
Triangular lug.
  Vertical:
    Samoa, 3788 *a*, 3099, 15743, 2284
    Tonga, 2259, 3357, 2264, 2271, 2256
  Plane:
    Samoa, 2274, 2279, 2287, 2285
    Tonga, 2257

Pentagonal lug.
  Vertical:
    Samoa, 3099 *a*, 2283
  Plane:
    Samoa, 2278, 2281, 3178, 2277
    Fiji, 3147 *a*, 3100 *a*
Square lug.
  Plane:
    Samoa, 2270
    Tonga, 3356

The perforation of the haft-end shows 3 types which extend over Nuclear Polynesia. The simplest is merely the drilling of a hole at right angles to the face of the lug and parallel with the surface of the club-end; this is found in table 44, under the designation "Transverse." Its recorded frequency in Fiji is immaterial, for there are but 2 lugs in that group and both show this simple perforation. The second perforation in frequency is the V-type, in which the drill is not set parallel with the end of the club, but two perforations are made at equal angles on each side of the central point and continued until they meet below the surface, and in many cases the perforation thus made has been rubbed down with a thin strip of the skin of the ray until the piercing approximates the semicircular. In Samoa the V-perforation occurs in all 7 instances with the lug; in Tonga 4 times with the lug and once without; in Fiji all 3 instances are without the lug. The diagonal perforation is essentially apart from the lug; it consists of a hole bored from the haft-end at such an angle as to come out upon the haft near the end. This perforation is found in Samoa in but 2 out of 29 perforated clubs, in Tonga in 1 out of 20, but in Fiji in 5 out of 13.

The increase in the proportion in Fiji is not to be taken as critical of that culture; it results from the paucity of the lug in that archipelago. Fiji supplies a perforation that is found nowhere else, the inverted V; in this, two holes are drilled from the side of the haft toward its end and at such an angle that they meet and issue from the end as one; that the drilling is in the direction stated is established by the *ula* 3786, in which one hole has been completed and a second hole has been started on the side of the haft to meet it. Fiji also affords two instances of the perforation of the shaft diametrically, undoubtedly a foreign contamination.

The purpose of the perforation is apparent from observation in the field and from the several museum specimens which still retain an original becket of sennit. This becket was solely for the purpose of suspension of the weapon; it partook in no sort of the nature of the sword-knot designed to be caught over the wrist as a protection against disarmament.

The single specimen from Niuē, *ululielu*, 18094, is of a peculiarly interesting haft type. Outside of the grip the haft-end is a cone of 9 inches length and diameter of a quarter inch at the tip, which evenly increases to a circumference of 4 inches at the base, and there is finished off with a raised ring of 5.5 inches circumference, and immediately follows the grip with a sharp reduction to a circumference of 3.5 inches. It is manifest that this haft-end serves no end of utility, except that the raised ring gives security against a possible attempt at disarmament by pulling; as we have noted in the case of the flange and knobs, the cone is purely decorative. We find nothing at all like this in Nuclear Polynesia, but the motive is frequent in the club culture of Melanesia and may be recognized in Parkinson's "Dreissig Jahre," from the Gazelle Peninsula of New Britain (p. 112), from the Sulka and O Mengen (p. 229) of the same island—an interesting fact when we note that the shape of the blade is found in the Solomon Islands at San Cristoval (Revue d'Ethnographie, 1885; L. Verguet, Arossi; *cf.* figs. 13, 29, 30).

The shafts of clubs offer less variety in treatment. In general they are cylindrical, with certain varieties of girth at various parts of length, as will appear on consideration of the record of dimensions.

A cross-section generally oval appears in a few pieces, all of Fijian provenience, as listed: billet, 2488, 3184; axe-bit, 2478, 3361, 3362; serrated, 2496, 3790 *b*.

Hexagonal section is found in 2 mushroom clubs from Samoa, 3789 and A 15743.

The Tongan paddle clubs have generally a circular section at the grip, becoming oval as the blade is approached; the same is seen in the dancing paddle from Fiji, 2501.

Two maces from Samoa, 3792 and 3792 *c*, are circular at the grip and become square near the head.

A *talavalu* from Samoa (3788) and a crescent club from Tonga (2500) have circular grip and become rhomboid near the head.

A rootstock from Tonga (3175) and an *ula* (2465) are circular and hexagonal at these two points.

Three Fijian rootstocks are circular at the grip and develop flat planes near the head in alternation with the flanges of the head; these are 2482, 3100, and 3782 *a*.

In certain types of club one or more angles persist either from a recollection of the original article conventionalized in the club form, as the *lapalapa* from the angled coconut leafstalk, or ribs or angles, which are specific in the head form, extend more or less down the shaft, as in the carinate, the crescent, and the serrated types. In general, these angles are smoothed out in the final finish of the piece when it is rubbed down with shagreen or abrasive stone, or if they are allowed to remain they are smoothed off in the grip for convenience in handling. These are noted in the following memoranda:

Lapalapa:
Angles persistent throughout, 2270, 3172 *a*, 3172 *b*, 2277.
Angles stop at grip, 2280, 2281, 2278.
Angles stop near head, 2276.
Crescent:
Angles persistent throughout, 2263, 3186 *d*.
Carinate:
Angles stop at grip, 2284, 2499.
Serrated:
Angles persistent throughout, 3791 *c*.
Angles stop near head, 3790 *b*, 3790 *a* 2497.

The billets are the only clubs in which it is possible to study the difference between haft and head dimensions with anything like the detail which has been possible in the increment from the grip to the haft-end, whether as flange or knob. The moment of such increment in circumference, by inches and fractions, appears in table 46.

TABLE 46.

Increment (inches).	Piece No.	Increment (inches).	Piece No.
1	3177, 2491, 2488, 2489, 3100 *b*, 3100 *a*, 3780 *c*, 3147	2.5	3184, 3780 *e*
		3	2265
1.25	3780 *a*	4	2267
1.5	2492, 2490, 3780 *d*, 2493, 3780	4.5	3185
2	3186, 3144	4.75	3143
2.25	3147 *a*		

There seems to be no connection between these forms and the source of the pieces, and the increment does not at all correlate with the length of the weapon.

In all other types the head is little related with the shaft, and in the head variety there would be no profit in comparison of dimensions; yet

a comparison is possible among the shaft dimensions for different head-forms.

In the rootstock type the shaft and head are regarded as continuous in source in the simpler form. The dimensions of shaft at grip and at the nearest point to the head give the increments shown in table 47.

TABLE 47.

Increment (inches).	Piece No.	Increment (inches).	Piece No.
1.25	3782 *a*	2.75	2481
1.5	3783, 3782 *b*, 3100, 2482, 3782	3.75	2480
2.25	3303 *a*, 3782 *c*, 2479	3.5	2483
2.5	3175, 2485, 1974, 2484		

The missile *ula* presents two types of shaft, which will eventually be found charged with significance. All of the ball-headed type and almost all of the flange-headed type have shafts which are of uniform diameter from haft to head. Two of the latter form, 2465 and 3786, show a swelling of the shaft toward the head amounting to 1.75 and 2.25 inches of circumference increment respectively. I incline to regard this as influenced by the form of the next type. All of the type with the patterned head show increments: 2466, 0.5 inch; 3188 *a*, 1.5 inches, swelling into the pattern of the head; 2461, 1.87 inches; 3188, 2 inches; 2461 *a*, 1.25 inches, and a distinct plate at head; 2462, 2.75 inches, and similar plate.

TABLE 48.

Piece No.	Girth at haft (inches).	Girth at bend (inches).	Girth at knob (inches).
3182 *a*	4.5	5.5	6.5
3183	5	6	6.75
2252	5.25	6.5	7.5
3787	5.25	7	8
3182 *b*	6	7	8
3182	4.5	6.5	6.5
2486	5	6	6
2487	4.25	5.5	5

The pandanus clubs show clearly a shaft design in various stages of execution. In 5 of the clubs it is manifest that at the three distinct points of the shaft—the haft, the bend, and the knob—there is intended to be an increment of an inch. In the next two the dimensions at bend and at knob remain unaltered; in the last there is a slight decrease at the knob. These will be apparent on comparison of dimensions at the critical points, shown in table 48.

The three axe-bit clubs give these dimensions of shaft: 4 inches, 5.25 inches at head, flanging to 6.5 inches; 2478, 4.25 inches, flanging

to 6.75 inches; 3361, 4.75 and 6 inches, no flange. These pieces lack the scrupulosity of the work of clubwrights working in other types, yet none the less on that account is every detail significant. There can be no doubt that the flange is integral to the shaft and a necessary part of the design. Piece 3361 is a very rude specimen; the flange escapes the tape, but its motive immediately appears when we examine the next unit of the head, for there is a notable decrease in perimeter, implying a flange.

The lipped clubs offer little of interest in their shaft detail. In two of the types the shaft is of uniform diameter as far as the beginning of the roughened panel, and there engages with the detail of the head; in the highly ornate type with worked panels the diameter of the shaft increases slowly from haft to the same critical point.

TABLE 49.

Haft.	Head.	Piece No.
Ends similar:		
Domed	Domed	3147 *a*, 2267, 3100 *b*, 3100 *a*, 3780, 3780 *a*
Square	Square	3147, 3780 *e*
Ends dissimilar:		
Cupped	Square	3184
Cupped	Domed	3144, 3185, 2491, 2488, 2490, 2489, 3186, 3143, 3780 *c*
Square	Domed	2265, 3177, 2492, 3780 *d*, 2493

The maces have shafts of practically uniform diameter; probably no significance attaches to the fact that in 3792 *a* the shaft circumference immediately next the head is half an inch smaller than at the haft.

In the *talavalu* the shaft is generally of uniform diameter, such enlargement toward the head as may exist being entirely due to the rather distinct shoulder from which arises the serrated blade; in 2272 this expansion gives the dimensions of 4.5 inches at haft and 11 inches at shoulder.

The *lapalapa* follow the general shape of the leaf-stalk from which they have been conventionalized—a smooth increase from haft to head.

Similarly the paddle clubs, offering no distinct demarcation between shaft and head, do not call for consideration here.

In the carinated clubs the shaft is of equal diameter throughout until the point is reached where it expands toward the head unit. The same note applies to the serrated, the crescent, and the mushroom clubs.

In the 2 horned clubs measured the shafts are generally of the same diameter; one increases by a slight amount next the blade, the other similarly decreases.

The head-forms are so various, congruent in each type of weapon but not susceptible of coordination, that it will be just as well in this place to indicate the separation in source, which will be subjected to

argument in the next chapter. The clubs which without any peradventure are derivative from a strictly wooden source are the following: the crescent, the billet, the rootstock, the *lapalapa*, the paddle, the serrated, the mushroom, and the carinated; of these the billet alone affords any possibility of coordinating the two extremities of the same piece.

These fall into two groups of somewhat unequal numerical value. In one, with 8 pieces, the two ends are similar; in the other, with 14 pieces, they are dissimilar. These are listed in table 49.

With such diversity in a weapon of such simple form it is clear that the variety lacks significance; the only conclusion which we are justi-

TABLE 50.

Index.	Piece No.	Index.	Piece No.
11.9	2257 *a*	17.5	2271, 2269
12.5	2258	18.7	3146, 2261
13	3174, 1975, 3174 *a*, 2259	1	3359, 3145, 2260
14	2264, 3360	0.6	2262
16	3357, 3355	0.83	2257
16.2	2268, 3356	0.87	2256
16.6	3358		

fied in drawing is that a marked preference has been shown for the domed head. It is interesting to compare with this end-treatment the interesting end of the rootstocks, which consists of a well-formed cylinder ending in a cone or cut square across and without trace of the dome motive. This will arise for consideration in the following chapter.

The crescent, mushroom, and horned clubs have received sufficient consideration at their first presentation. We can discover in their varied forms no suggestion of origin other than derivation from the possibilities of timber.

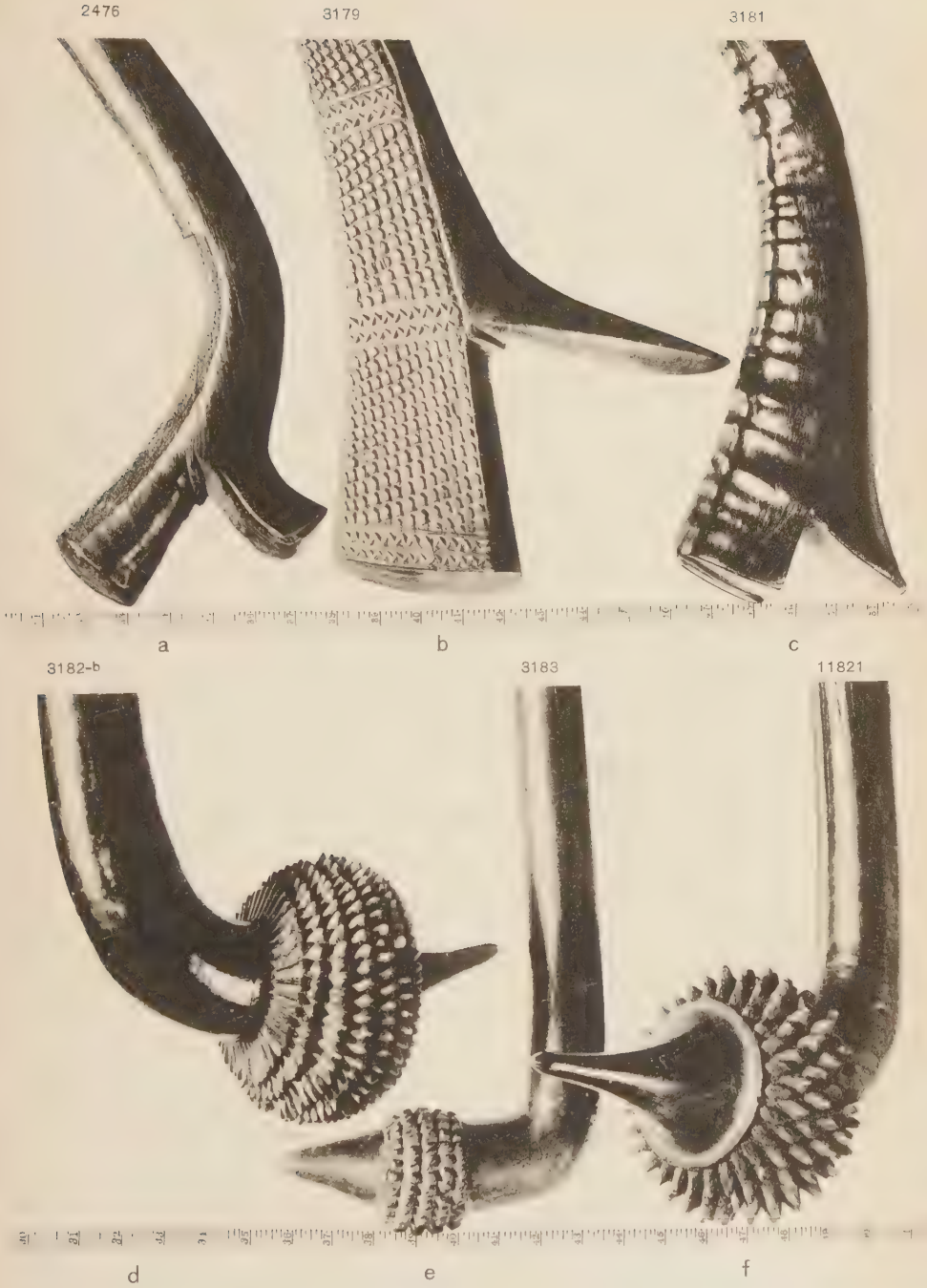
The *lapalapa* at the head-end carry, as already stated, the suggestion of the cupping which is found in the natural leaf-stalk from which they derive. This character is so fundamental that it is observed in 11 of the 17 pieces—2270, 2280, 2281, 3178, 2279, 2278, 3172 *a*, 2277, 2276, 2274, and the interesting 2273, which exhibits the rare and imitative unit of a strongly carved band over the middle of the cupping. Five pieces lack the cupping and finish with a more or less straight edge—3099, 3172, 3173, 3172 *b*, and 2266. One only—3178 *a*—has so far departed from source as to present a domed end.

The heads of the paddle clubs vary considerably in shape, though not at all in design. This form depends upon two factors, the maximum width and the distance of that width from the tip of the head.

In an empirical fashion I have gathered these variants into groups for comparison by extracting a definite index-figure as the result of dividing the width by the distance. We then find one large group in which the width exceeds the distance, a smaller group of 3 pieces in which they are equal, and a final group of 3 pieces in which the distance exceeds the width. Assembled by these empiric indices the clubs of this group fall into the array shown in table 50.

These complete such notes as are needed in the record of the clubs whose origin is distinctly from the wood employed. We next proceed to the consideration of the club types in which the form and structural detail of the head and parts thereto adjacent are insusceptible of comprehension as timber products.

METAMORPHS OF CLUB HEADS; SERIES A.



METAMORPHS OF CLUB HEADS: SERIES B.

CHAPTER IV.

EVOLUTION OF THE CLUB TYPES.

It is incumbent upon me to present this theme with great nicety of detail in order that the reader may be led in the direction of the conclusion which has been forced upon me in the intricate task of ordering the clubs by types and of studying the meaning of every unit of structure as the clubs passed through my hands.

In the study of the actual weapons of the types to which I have assigned the designations of *ula*, mace, *talavalu*, lipped, pandanus, and axe-bit, I have convinced myself that we have to do with wooden metamorphs of similar clubs in remote prehistory in which the effective head was stone or shell hafted in wood. This conviction I hope to be able to communicate with the aid of the illustrations and of the detailed measurements.

At the time of discovery by European navigators, Nuclear Polynesia was found in possession of stone utensils, but we have no record, nor have the islanders themselves any tradition, of the employment of stone-headed weapons. The adze was in constant use, a mass of hard volcanic rock, polished, worked to a cutting-edge, and mounted with its edge transverse to the wooden handle, to which the stone was applied with great ingenuity, the summit of this art being preserved in the museum in the several ceremonial adzes deriving from Mangaia and Rarotonga. Minor edged tools were subsidiary to the adze, stone chisels, drills, scrapers of various uses, and particularly the somewhat highly specialized scraper employed for the shredding of the dense meat of the coconut in order to extract therefrom in combination with the water of the nut, that emulsion which enters so largely into the island dietary and has become known as the milk of the coconut, a thing quite unaccountable in the popular saying, because the milk never is in the coconut, but is a product of the ingenuity of man. The extent to which stone cutting-tools were in employment is indicated by the fact that all our dictionaries of the region afford us the word *foanga*, or some dialectic form thereof, with the definition of grindstone, a misnomer, since the stone was not rotated, but served as a rubbing-stone or whetstone. Thus, while we are fully assured of the employment of the hafted stone blade as a domestic and industrial implement, we have no knowledge as to the use of hafted stone in warfare.

In this lack, Nuclear Polynesia is set apart from the later culture of its dominant race, for in the regions of settlement by Tongafiti folk we find abundance of stone armament. It is equally set apart from all the tangled Melanesian cultures to the westward through which we postulate the leisurely migration of the Proto-Samoans upon their

course to the settlement of Nuclear Polynesia. The Tongafiti Polynesians, all the Melanesians of whatever culture horizon, have weapons of stone; the Proto-Samoan population of intervening Nuclear Polynesia alone show this lack. In the prosecution of this particular inquiry I hope to establish my conviction that in the particular types mentioned we have wooden weapons which show the manufacture in the more readily workable material of forms which at some remote time, and perhaps place, of origin were more painfully worked in stone or other hard material possessing armament value. Wood is more readily worked than stone, yet the wood employed for weapon purposes, largely the very heavy and dense ironwood (*Casuarina equisetifolia*), is practically indestructible, save by the accident of fire, as will be apparent when it is recalled how few are the occasions in the detailed description of the pieces when it has been necessary to comment upon any club as worn or broken. Despite the intimacy of daily acquaintance with these clubs, continued through many pleasant days, I myself can now recall in such memory in the list of breakages a pandanus, a mushroom, a paddle, a *talavalu*, and a crescent, five in all, and of the five but one in which the breakage could seriously impair the value of the weapon.

We postulate, therefore, that wood is appreciably more easy for the clubwright to work with his stone knife; that it is quite as durable within the circle of utility for the specific purpose of offense.

In the inquiry upon which we now are to enter we shall look for the evidence that these are wood metamorphs upon stone to be presented to our view in three principal points: the shaft of the club at the head is to offer, either in its distal or in its proximal aspect, the proof that shaft and head are distinct entities in theme; the head is to show traceable resemblance to head-types which we can discover in stone in regions or upon culture planes with which it is demonstrable that Nuclear Polynesians have come into contact; the third important detail, one not always present but extremely significant when it does exist, is the carved band which engages with the head and some portion of the shaft. A fourth significant point, this restricted to the lipped clubs, is a distinct edge. With these two postulates and with the attention directed upon these four critical points, we now take up each type of club in which we find metamorphism.

The easiest of approach, because its form is the simplest, is the *ula* or missile club. Even in this simple type we have found three species set apart by the form in which the head is treated. The least complex species is that in which the head is merely a ball smoothed as much as the natural root-ball will permit. Of this type we have 5 pieces, 2468, 2469, 2467, 3785 *a*, 3785. In each case we find the treatment of head for which we have adopted the formula "saucered at shaft." In close approximation to the point where the wood of the head and the

wood of the shaft unite, the head loses its spherical curve and is carved in a shallow depression which suggests nothing so much as a saucer, and from this saucer the shaft arises. This is visible in Plate V, figure 12 (2468), the same piece as is shown in Plate I, figure *c*. In this illustration is observed a very slight increase in the diameter of the shaft at the point of union with the head. The fact that this increase is slight and is not found in companion pieces leads us to lay aside this detail as not affecting the general problem; possibly it is influenced by the next higher species. Although these pieces are all carved in solid wood, each looks as if the handle had been driven into a hole drilled part way into the head for its reception. We find no stone-headed club in the neolithic culture of the Pacific which exactly carries out this suggestion, no piece in which a stone rubbed down to a more or less accurate sphere is pierced by the drill partially through its diameter. If we were to find such a stone thus partially perforated we could comprehend how a shaft might be driven into the hole, chocked in place by subsidiary splints, and finally secured by the application of gum between the shaft and the edges of the stone, which would take a conical form through the operation of grinding the perforation. Even though we lack this stone head, we feel justified in establishing it by extrapolation upon the series of data which we possess. Immediately following this hypothetical sphere of stone half-perforated comes the spherical stone completely perforated. The museum affords us an abundance of specimens of this advanced stage. In Plate V, figure 11, we have an excellent specimen of such a stone removed from its shaft and exhibiting the stone made spherical by rubbing, the perforation along the diameter passing quite through the stone mass, the conical rim of the perforation which pairs with the similar depression on the other face to produce an hourglass section. In Plate V, figure 17, we show the other face of the same stone club-head, which still contains the gum which has filled the conical depression for the purpose of anchoring the head to the shaft, this gum being molded into form such as will complete the curve of the sphere up to the handle, as will be seen in figure 18, a complete weapon of this type in which the head is so firmly attached to the shaft that it could not be removed without picking away the gum from the proximal face. The ornament inserted in the gum while still plastic consists of sections of the nassa shell, as in the two pieces figured, of human molars, or of both in combination. This row of ornament, which essentially consists of a series of plane faces, I regard as carried over into the wooden metamorph in the slight saucering next the shaft in Plate V, figure 12. It has not been deemed necessary to disarticulate any of the clubs of the type figured in this connection, for I have had the opportunity to see the clubwright in the act of assembling them and have observed his use of small wedges driven sharply home from each face in order to make the joint tight before

the anchorage of gum is applied. This spare head and the complete club are attributed to the Gazelle Peninsula in New Britain of the Bismarck Archipelago, and this attribution is confirmed by Parkinson (Dreissig Jahre, p. 112, Tafel 8, fig. 9) with the name *palau*. These clubs, he comments, are held by the coast-dwellers in association with magical rites as something old and of a somewhat alien culture. Their provenience is assigned to the Baining folk of the mountainous interior, and in type they look rather toward the Sulka and O Mengen of the Nakanai coast west of the Gazelle Peninsula, on the north coast of the island.

In the case of the ball-headed *ula* we have had to have recourse to the method of extrapolation in presenting the probability of a source of the wooden weapon in stone culture. When we take up the wheel and patterned head-types of *ula* we have ample confirmation in the pieces figured in Plate V, figures 13–20. In figures 7–12 we present two of each of these more advanced types in such aspect as will make patent the essential details. We find a shaft, a head variously worked in two styles, a ring, and a knob at the distal extremity. The head may very properly be regarded as metamorphic upon the worked-stone head which we have just been considering; the ring and knob are ornament without sense in the art of the wooden club. In the Baining *palau* (fig. 18) we may readily dissect out the structural detail. The drilled stone being prepared, the clubwright must mount it upon its handle in order that it may be made into a weapon of utility. He prepares a stick of such diameter as to admit the possibility of sliding the stone disk over it to a point where it will satisfactorily engage with the wood. At this point, the distance being governed by the length normal to the type of club, he carves the stick into a cone attaining a diameter by a certain amount larger than the perforation of the stone. He sets the stone home by driving the distal end sharply upon a fixed rock, exactly as a navvy seats his pick-axe on a handle by utilizing the same principle. The pick-axe is a utensil of peaceful industry; no harm is done if the head works loose; it can readily be reseated with no more serious result than a brief and never unwelcome loss of time. The club is intended for uses in which the delay of reseating would obviously be fatal; accordingly, the head must be anchored with gum, and the germ of the art sense finds manifestation in the shell or tooth ornamentation. We see in the Baining *palau* as a structural necessity the distal knob, which remains as a conventional ornament in the two *ula* species now under conjoint examination; the ring at the point of union of the distal knob and the head, an element which suggests a narrow plane surface, most probably types the ring of ornament inserted in the gum anchor.

At this point, for greater convenience, we shall continue our study of the clubs in the lowest tier of Plate V. Figure 19, a wooden club

deriving from New Caledonia, a region of extensive neolithic culture, appears in this collection merely as a wooden club, yet the same has been found in the mountains of that island in use as the shaft upon which are mounted stone heads of divers forms. Regarded as the shaft of a stone head this phalloid stick is very significant, for it is at once evident that if such a spherical and perforated disk as is here figured were slipped up the shaft to the shoulder at its distal end, and were then anchored, we should have the ring and knob as a structural detail of the shaft corresponding with the similar ornament in the two advanced *ula* species. In the Malekula club from the southern New Hebridean culture (fig. 20), we find a wooden implement in which the shaft exactly corresponds with the Baining *palau*, and the head shows highly specialized flanging of ovoid bosses separated by longitudinal walls. We shall return to this matter of flanging in the club-head. From New Guinea (probably from the Gulf of Papua and the south coast to the Louisiades) we have three stone-headed clubs (figs. 14, 15, 16), which fall within a common type. The heads are carved in one and two and three rows of knobbed or spiked units, at either end of which the stone continues as a more or less smoothly carved cylinder. The mounting of these heads is dissimilar from that used by the Baining. The wooden shaft is far less carefully carved; at the distal end it is in fact merely roughly whittled, and the stone head might slip from end to end of the shaft, for there is no enlargement of the wood which might serve to hold it. At a distance from the end of less than an inch a woven pattern is set closely about the shaft in leaf and fiber, extending downward 11, 13, and 14 inches respectively in the three pieces. Upon this somewhat compressible and resilient bed the stone head is set after the same manner as in seating the pick-axe. Without venturing upon a definite determination of the direction in which the head has been seated, there is ground for the opinion that in these three clubs the head has been seated in the reverse direction; that is to say, it has been passed over the head of the shaft in a downward direction as far as it has been possible by hand to shove it over the wrapping, and that then the seating has been completed by driving the haft upon solid rock. Of course it is recognized that this is dynamically improper; that the centrifugal force must tend to loosen the head; but in these specimens, after their long sojourn in museum keeping, where they have become desiccated in dry air, the heads are yet as firm as when driven home in the equatorial humidity of the place of their origin. The club with the single row of spikes (fig. 16) engages in head-form with that wooden form from Malekula (fig. 20). In the development of this theory of club evolution from the stone head upon the wooden handle to the all-wooden metamorph, a most significant article of substantiating proof is found in figure 13. This club, with six rows of bosses reproduces the type of figures 14 and 15 in the

form of the bosses in the distal and proximal cylinders, yet this piece is carved out of a single piece of wood, and beyond the distal head cylinder it reproduces so much of the shaft as in the stone pieces is found projecting. It was collected in Port Moresby, on the Gulf of Papua, and proves the existence of the wooden metamorph in the very region of the stone type.

Reverting to our *ula*, we have now to consider the two species of head and the diversity of treatment of the shaft upon the proximal side of the head.

The wheel-head consists of a series of longitudinal flanges, in number 6, 7, 9, and 10 respectively, these flanges ovoid in the longitudinal direction and therein differing from the Malekula club (fig. 20), in which the ovoid bosses display the major axis transversely. This detail of ornament found in the 5 wheel-head *ula* is undoubtedly continuous into the ornament of the 5 flanged-head rootstock clubs, as illustrated in Plate V, figures 5 and 6. It will be noticed that these much larger pieces continue likewise the detail of a distinct unit of distal projection beyond the flanges. Structurally we have seen how such a melon-head may be obtained from the root-ball of the sapling, but mere structural facility does not wholly account for its existence as a distinct species, whether of *ula* or of rootstock. It seems clear that the source is in the stone head, such as we have found in these New Guinea pieces, in figures 13, 14, and 15; if the work be stopped after the longitudinal carving has been completed and before the transverse carving has been begun we should have a stone antecedent of the melon type. This is hypothetical, for we have no examples of this form in stone. This explanation equally accounts for the distal projections in both *ula* and rootstock, but it leaves unexplained the disappearance in the two wooden forms of the proximal cylinder. The haft of the wheel-headed *ula* generally expands toward the head, a structural detail which entails considerable difficulty. If I am correct in my reading of the direction of the seating of the stone heads in the New Guinea pieces as from the distal end toward the handle, we shall dispose of the difficulty so far as it relates to the passage of the head over an expanded portion of the shaft. We should then have to prove the existence of a shaft shoulder against which the head was seated. On the whole, when we observe the fact that in this species the girth of the shaft on the proximal face of the head corresponds very closely with the girth of the final knob, we are better satisfied with the structural detail shown in the Baining *palau* and the seating of the club in the direction of centrifugal force. Yet against this is to be set the fact that in the flanging rootstocks the girth of the shaft on the proximal face of the head distinctly exceeds the girth of the final knob. A very interesting variety is observed in *ula* 2465, attributed to New Guinea, a provenience which will be

considered specifically with others along the same line. The expansion of the shaft in this piece (Plate VIII, fig. *e*) consists of artfully carved flanges alternating with the flanges of the head and providing a hexagonal section. This alternation of shaft-flanges is observed, though less carefully executed, in the rootstocks (Plate V, figs. 5 and 6), 3175, 3100, 2482, and 3782 *a*.

We have seen that metamorphism is clearly recognizable in the *ula* of the ball-head; that with no great difficulty it may be traced through the wheel-heads. The patterned type can only be regarded as a secondary evolution after the stone idea has passed from knowledge; decoration has now overwhelmed structural detail. Yet we find the retention of a head, which at base is flanged, and of the distal ring and knob without alteration.

In the discussion of the *ula* we have included the discussion of the single unit of the rootstocks (Plate V), which suggests evolution on a stone-head type. This is the carefully worked distal projection in the flange-shaped species. In 5 out of the 7 pieces in which the head is characterized by persistence of the rootlets we find the same suggestion of distal projection, in certain instances very formally worked out, this being particularly apparent in figure 3, and in 4 less completely done. This is not a structural necessity of the timber source of any of these rootstocks; it seems to have been carved in the flanged-head pieces from a stone original, thence to have been extended to the sapling motive by unthinking imitation.

We have next to consider the types in which the shaft exhibits a curve at or near the head. In this group we assemble as to this one detail the pandanus and the lipped clubs, and therewith we associate the axe-bit club, although the curve in this case is established rather through the element to be identified as socket than by the shaft itself. As has been already noted in the consideration of the sickle club of Niuē, we are to seek the nearest relative of this type in Arossi of San Cristoval, in the Solomons, and to find more distant kin in New Guinea. Niuē, at the remotest eastern limit of Nuclear Polynesia, may serve to establish for us the fact that a culture of the curved club has passed through this province. With this important support we feel justified in recognizing in the curved shafts of Fiji an intermediate locus of the type.

In the pandanus the critical details are the curve of the shaft in immediate proximity to the head, the head of several (5 to 8) rows of rather carefully cut knobs or spines, the distal plate usually with a limiting raised ring, the distal cone. We figure this type in full in Plate II, figure *d*, and in head detail of 3 pieces in Plate VI.

Although the head receives in this type such a high degree of detail as to warrant the Fijians in interpreting it as based upon the motive of the pandanus compound fruit, which I have already shown to be

a structural absurdity, it seems to be clearly of the same type as that which we have examined in the New Guinea group (Plate V, 13 to 16). Regarding this as a movable addition, we shall try to discover what remains in the way of shaft after such removal. We find a smoothly worked shaft of fairly even diameter, except just at the bend, all as set forth in table 48, where we have pointed out the gradual increment of an inch at bend and head. This shaft uniformly ends in a plate, commonly guttered very slightly, from which rises a cone generally of sufficient height to afford a somewhat sharp point. We find in the Pacific no such cone-headed pieces with a bend, but we do find pieces in every other respect the same, barring the curve. Parkinson (Tafel 8, figures 7 *bau* and 10 *mukmuk*) pictures from the Gazelle Peninsula, but as probably ferried across the strait from New Ireland, straight clubs which end in a distal plate and sharp cone, these being straight from haft to head. He presents from the Sulka and O Mengen (p. 229, figs. 4 to 7), but probably derived from the mountaineer Baining, clubs of straight shaft, which end in distal plate and sharp cone, and, this being a particularly important detail, have carved for some distance inside the distal plate an array of knobs quite closely resembling the stone heads from New Guinea. We shall then have to conceive it possible that the plate-and-cone shaft has been fitted with the stone head, that in the course of migration the present people of Fiji have acquired the hockey-stick shaft of Arossi, as seems confirmed by Niuē, and that under this intermediate influence the straight pandanus club of the Nakanai coast of New Britain, which itself is now an all-wooden metamorph, has become the curved pandanus *totokia* of Fiji. In this case we postulate the secondary evolution when the Fijians have recognized the similarity to the pandanus-fruit cluster and have carried it still farther in the botanical detail of nutlets radiant from a common core (Plate VI, fig. *d*).

We interrupt the study of the curved clubs in order to complete the tale of the spiked stone head which we have been following through various mounts. Two of the maces (Plate III, figs. *b* and *c*) are clear developments of the same head-theme. The larger of these pieces is of poor workmanship, the other most artfully worked out. They exhibit a straight shaft, a spinous head with attachments distal and proximal. In the larger piece these are represented by merely whittled cone attachments, but in the smaller we find the end capped by a neatly worked plate slightly domed and at the proximal end of the head a small circlet of lighter spines in a contrary spiral. The distal plate or cone we can readily interpret as a finial of the wooden shaft intended to prevent the stone head from slipping off in that direction. It appears probable that the proximal attachment represents some arrangement of sennit lashing of or gum; we have seen each material employed to this end, devised to hold the head secure upon the shaft

as against slip toward the haft. In the smaller piece it is apparent that the minor spikes are pure ornament, despite their sharpness, for they could not engage with the object already torn by the larger head. The other pieces classed among the maces are scarcely to be interpreted as metamorphs of this particular stone-head unit and will accordingly be examined in connection with another theme.

Recurring to the clubs of curved shaft, we take up the lipped clubs (Plate II, figs. *g*, *h*, and *i*; Plate VI, figs. *a*, *b*, and *c*). There are 5 distinctive units of this type, 2 common and unalterable, 3 exhibiting such variety as to constitute specific differences. The unalterable units are the curve of the shaft and the blade-like prominence on the face of the head along the line of its major axis and in the direction of the downward stroke of the weapon when in use.

Regarding the actual head of the weapon as beginning at the proximal end of the panel, there is some slight variety in the angular dimensions of this curve. In the species in which we find the roughneed panel the curve is sharp and very nearly corresponds to the general curve of the pandanus clubs. In the species with panel of rugosity the curve is more obtuse; it corresponds with the general curve of the axe-bit clubs. In these two species, however, the curve distinctly springs from the beginning of the panel; the shaft to that point is quite straight. The third species is far more ornate, distinctly a work of art, therefore in a stage of secondary evolution from the prototype. The outer curve on the lip-face of the shaft is far more obtuse; the upper curve along the panel is appreciably more acute than this outer curve and approximates the outer curve of the next preceding species; the inner curve of the lower edge is yet more acute and proceeds from a gradual increase of the girth of the shaft, which arises insensibly in the general girth and produces a fine sweep from the grip to the outer edge of the head.

No matter what the species of this club, the blade-like prominence is found along the median line of the head from its lower tip to the upper edge. This, we note, is wholly regardless of such treatment of the head as we are to regard as structural survival; it will prove an inconvenient factor in our interpretation of the type, and we shall be forced to the assumption that the clubwrights have lost the sense of its specific origin and have treated it as a convention. This very significant blade is distinctly visible in all our illustrations, except figure *g* in Plate II and figure *a* in Plate VI.

The three variable units are the lip, the panel, and the rib.

I can not regard the variety of the lip as critical. It expresses in all species alike a purpose subsisting from the hypothetical prototype, in which it served an indubitable structural end. The three varieties of lip correspond to the general facies of each species. In the club with rough panel the lip partakes of the tendency toward the expression of cylin-

drical motive with smooth curves; in the club with rugose panels the lip conforms to the heavier type and finds expression in rather wide triangular form approximating the equilateral; in the decorated clubs of the third species the lip expresses with great grace the motive of strength through vertical dimension and apparent lightness by reduction of the transverse dimension.

The variety of the panel likewise seems lacking in critical value. We find in two species—that with roughened panel and the decorated type—the panel ending up-shaft with a clearly expressed line of demarcation, except that in 2474 this detail is a trifle obscured. In the species with rugose panel the rugosity slowly merges in the smoothness of the shaft with no distinct demarcation.

The carved rib thrown across the angle of lip and head is constant in all of the simpler pieces of the roughened panel, is entirely absent from the pieces of rugose panel, and is present in 2 out of the 5 decorated pieces. Apparently this presents a gradual process of elimination as we progress away from the prototype.

In my interpretation of all these elements in their combination as we find them in these pieces, the key to the solution of the problem lies in the blade-like prominence on the face of the head.

In position it represents the axe-mounting rather than the adze. I note at once the objection that in Polynesian culture we do not identify the axe; the adze is the universal mount for the blade of wood-chopping utensils. Against this objection I set the fact that in the consideration of the other metamorphs we have drawn freely upon stone prototypes which yet remain in use in Melanesia, and we have drawn thus freely upon this source because of our recognition of the fact, already satisfactorily established through linguistic methods, that Polynesian migration of the Proto-Samoan wave of folk-movement which is originally responsible for the peopling of Nuclear Polynesia has been drawn down the Melanesian island chains from Indonesia along each aspect of New Guinea by way of the Bismarck Archipelago and Torres Straits respectively. In northern Melanesia of the Bismarck Archipelago and its northern island outliers, in all parts of New Guinea, we not only find the adze and the axe, but we have every intermediate stage, and these are very handsomely represented in the museum collections.

As between the adze and the axe in these Melanesian cultures there is no difference in the blade itself. It is either a stone worked down to a thickness of some 2 inches, pointed at one end and regularly widening toward the blade of from 4 to 6 inches, which is slightly convex away from the point, and is rubbed down to an edge either on one or on both faces; or else it is a similarly shaped cutting from the shell of the great mollusc of those seas, the *Chama* (*Tridacna*) *gigas*.

Two types of axe-mounting are observed. In one the end of the wooden shaft is perforated and the blade is shoved home through the

perforation at an angle which may vary from the right angle with the general extent of the shaft to a very considerable cant in the outward direction. Considering the end of the utensil in this type of mounting, we find four points which call for notice. Two pertain to the wood of the shaft; proximally a certain note is made in shape or in ornament to set apart the function of the extremity; distally we are under structural necessity of a certain projection of shaft beyond the blade-socket. The other two pertain to the blade. On the upper edge of the shaft the pointed end of the blade extends for some distance beyond the wood and becomes a noteworthy character; on the lower edge we find the blade tending to approximate the distal projection of the shaft, according as the angle of setting diverges from the right angle. In the second setting a subsidiary mounting of the blade is carved in the form of a hollow cone into which either of these blades is jammed and held securely lashed by ties of sennit or rattan. This subsidiary mounting may then be thrust through a perforation of the shaft, but this is the far less usual form by reason of the fact that a perforation large enough to accommodate the wooden mount would call for such an increase in the size of the shaft as to make the implement quite unwieldy. More commonly this subsidiary mount is lashed to the distal end of a shaft, either naturally crotched or scooped out to afford a practicable bearing. As the former mount tends away from the right angle with the shaft in the distal direction, this mount, on the other hand, tends away in the proximal direction. In each of these mounts we have been able to trace the progress from that in which the cutting-edge lies athwart the shaft to that in which it lies in the direction of its length; that is to say, from the adze or primitive type we progress in a constant series of angular diversity to the axe.

In the critical details of the lipped clubs we seem to recognize certain of the features of each of these axe-mounts of the stone or shell blade in a combination which would not be possible to workmen who retained a clear impression of the prototype.

Thus the lip and head extension would stand for the upper projection of the blade and the necessary extension of the shaft in order to give support to the perforation. But in that case we should look for the cutting-edge on the lower side of the shaft in projection of the forward face of the lip.

Again, when we direct our attention primarily upon the lower units of the club, the blade, the head, and the panel, we recognize the subsidiary mounting in which the blade is either set within a hollowed frame or is set between slabs of wood which allow no more than the edge to protrude and give their support to the remainder of the blade, which is fragile in its length. We have found no simple mount in which the generally distal angle of the blade relative to shaft has progressed so far as to give a mount wholly in the line of the extent of the

shaft; furthermore, we have found no compound mount in which the angle is other than proximal.

We next investigate the specific character of the panels, not at first in the matter of their surface finish, but rather in their structural relation to the shaft. In the pieces having roughened panels we have recorded in each case the fact that the roughened surface covers the lower face of the head, which in every case is rounded. More or less, but always some, of the upper face of the head, including the aspect which with the lip forms the distinctive angle, is distinctly indicated as a continuous part of the shaft. In the very decorative clubs with worked panels the same continuity of shaft is quite as distinctly indicated on the upper aspect, although the panel occupies appreciably more of the height of the sides of the head; in this species 3 of the pieces have the panels continuous from one side to the other over the lower edge of the head; 2, however (3186 *c* and 3179), exhibit the panels as separated along the lower edge by a plain stripe from edge of head to end of panel about one-half inch in width. This parting band may be seen in Plate XI, figure *b*. In the 4 full-sized pieces of the third species the rugose panel is continuous over the lower edge, and even in the reduced specimen 2495 the presence of the mere notches along the lower edge is to be considered as expressive of the same feature. Along the upper aspect the shaft continuity is reduced in its expression to the fact that the top of the head in the distinctive angle is as smooth as the face of the lip opposite it.

Now we shall essay an interpretation of these types as based upon panel differentiation. Thereto we postulate a type of axe-mount in which the lip types the projection of the head of the blade; the head in at least its upper aspect types the distal projection of the shaft beyond the socket perforation. This form having been conventionalized to such an extent that the lip, originally stone or shell, has gone over into the wooden member of the group, we shall examine its adaptation to the purpose of a longitudinal mounting of the edged blade.

Roughly paneled species.—I regard the surfacing of this panel as diagnostic. In contrast with the high finish of the wood of the shaft, this is distinctively indicative of difference in material. This I can only interpret as the contrast of stone surface with polished wood. We thus see the postulated shaft in its conventionalized form excavated for the reception of a stone blade. We thus comprehend the presence of the sharp line of demarcation between shaft and proximal edge of the roughened surface; it stands for a shoulder against which the end of the stone was seated in order to prevent motion down the shaft. At the distal end of the head we have the cutting-edge projecting beyond the protecting wood of the shaft. This protection in the helving of stone or shell blades is essential and real; such blades may receive an edge which is impossible to wood, but they have the tendency to

shatter under impact; the wood is less dense in structure, but the disposition of its fibrous bundles renders it less liable to shattering; when the two are properly adjusted one to the other the tough wood lends valuable support to the more fragile stone or shell, and in the case of this particular shell the density is so great that we may regard it as truly a dense limestone produced by animal rather than geological causes. Next we find great significance in the carved ridge across the angle between lip and head, which is found in all 5 pieces of this species. So long as we confine our investigation to these 5 clubs we derive the conclusion that the presence of this constant is indicative of a transverse lashing which supported the stone blade in two senses equally, one holding it taut against the shaft longitudinally, the other establishing its support against the wooden shoulder at its end. We shall see still more of this band in the species next to be examined.

Decorated-panel species.—In the former species the surface of the panel was regarded as expressive of the difference in finish between the blade material and that of the shaft. Here we find the introduction of an added unit, which gives us the expression of another motive. Reckoning downward from the top of the head, we have first a surface which seems intended to express the continuity of the shaft, then a highly decorated panel, last of all along the lower edge in 2 out of the 5 pieces a blank stripe longitudinally from the face of the head to the very end of the panel at the strongly marked shoulder on the shaft. This stripe is continuous with the blade on the face of the head and a trifle wider. I interpret this combination in the sense of a stone or shell, and the dimension of thickness rather suggests the shell source, set up against the rectangularly notched shaft with support up and down at the proximal shoulder, longitudinally on the upper line by the shaft and lip and upper face of the head, and with added support by slips of wood protecting its lateral dimension on either side. To this we add in 3179 (fig. *b*) the carved band in the angle of lip and head as representing a lashing as explained in the preceding type, and this lashing is continued down the face of each of the sculptured side-pieces in 3179 by a double tie of band-and-zigzag which we can comprehend only as representative of sennit. The same sort of tie on the side-pieces appears in 3186 *c*, but there lacks the determinant association with a band athwart the lip-head angle. This arrangement looks particularly toward the helving type of stone axes in which a subsidiary socket fixture is employed.

Rugose-panel species.—In this species we note the following important divergences from the motives of the foregoing species. The band in the angle is absent; up the shaft is no shoulder against which the panel might end; the panel gradually loses itself indistinguishably in the polished tract of the shaft both at the end and along the upper edges; the rugosity reaches up practically to the edges of the upper

face of the head and disregards the suggestion present in the other species of a shaft socket against which the blade is fixed. The rugose panel consists of two members—transverse wrinkling across the whole of the inner curve and less conspicuous scoring, the general effect being such as might be produced in less dense timber by exposure in a steam-box and bending under great pressure. The rugosity is so clearly diagnostic that we shall have no difficulty in recognizing its probable source. The outer surface of the tridacna is heavily sculptured in just such wrinkles, accompanied by less conspicuous lines generally at right angles thereto, the wrinkles of the shell being concentric with the edges of the lip. Blades occur quite frequently with the natural surface on one side. This must rest upon observation, for the many specimens in the museum are highly polished upon both faces and do not present this character. There is no part of the shell, not even at the very dense and on that account preferable hinge region, which can exhibit a rugosity such as in this species of club continues from one face over the other. It appears to me that if there were no more than the single face such as is seen in figure *c*, we have a satisfactory interpretation of the motive in a slip of shell with its natural surface and ground down at the end to a cutting-blade inserted on a shaft carved to receive it; the rugosity on the other face will then be comprehended as motivated by the general principle of symmetry in design. So many of the critical units of the type are lacking to this species that we may regard it as secondary evolution, but the persistence of the blade is quite sufficient to warrant its inclusion in the type. It will be apparent in the illustrations, far more conspicuously manifest in the pieces themselves, that in this species we have passed away from the lightness of the two foregoing species, which suggested greater importance of the cutting-edge of the blade, and have here produced a weapon whose impact force is reached by added weight grouped in the head.

In all three species of this type the blade continues on the face of the head from its lower point up to the middle of the upper edge. This is clearly a convention. In the two earlier species, in which the distinction between blade material and shaft-socket is structurally indicated, it will be apparent that a really structural cutting-edge must stop short at the beginning of the shaft-socket. But in the extension of this unit from utility to decoration we find no difficulty in the extension of the edge beyond its structural possibility.

The axe-bit club is of a type of extreme complexity (Plate II, fig. *e;* Plate IV, figs. 1–3). Considered as a whole, it presents the general appearance of a curved club; yet that can be proved more apparent than real. I dissect the piece into three units—shaft, socket, and blade.

The shaft is simple, a rectilinear column of oval section ending distally in a strongly marked shoulder set diagonally to the length and

inclining inward toward the lower edge. This shoulder in 3362 is set up by a strong flange, is not apparent on the upper edge, is sharply angled on the lower edge, and faces the next unit with a square-cut face. In 2478, a piece far less well executed, this shoulder appears on both edges of the shaft and continuously around it; its forward aspect is not so distinctly vertical to the blade, but meets it with a slant. In 3361 the shoulder is reduced to an obscure swelling of the shaft-end, tumbling home with a rounded aspect toward the blade. This piece is of very crude workmanship, carries an obscure extra unit which does not appear in the better-executed pieces, and exhibits several puzzling variations.

Between the shoulder of the shaft-end and the blade is a second unit set angularly with the extent of the shaft. This is clearly a socket designed to hold the blade in one function and in another to attach it to the shaft.

This socket suggestion is not only the sole possible interpretation of the structural form, but we find it most interestingly confirmed by a similar Melanesian form in the Admiralty Islands, remote in space but upon a well-established line of migration. From a paper by H. N. Moseley (Journal of the Anthropological Institute, May 1877) is extracted the following description:

"The obsidian lance-heads are secured in a socket of wood attached to the end of the shaft by means of a cement and by being bound round with fine twine. The socket is hollowed out in a separate piece of wood, and in order to facilitate the scooping out process two slots are usually cut in the faces of the socket. The shaft of the lance is spliced into a V-shaped slot in the lower part of the socket piece. A rounded strengthening piece is retained in the socket piece between the actual socket and the narrowed part of it in which the slot for the shaft is cut. A very hard and solid gum is used to bed the lance-head in its socket and the shaft in its slot, and to mass together the turns of fine twine which secure the whole. In some lances the entire socket-piece and the turns of binding twine are concealed by an even thick layer of the gum, whilst in others the gum is used more sparingly and the turns of twine and the wood of the socket-piece are exposed to view. In the former class of lances ornamentation is effected by patterns being incised in the layer of gum, and these have no *Coix lachryma* seeds attached to them. In the latter class the upper turns of twine are arranged in diagonals, etc., separating the ornamental colors, and the actual wood of the socket-pieces is carved and colored. The gum employed is probably the same as is used for caulking the canoe seams, which is obtained from a brown ovoid fruit about the size of a goose's egg. The efficiency of the fixation of the stone head of the lance evidently depends mainly on this gum. The wood of which the socket-pieces are made is hard when dry and old, but probably much softer when cut in the fresh condition. . . . The socket pieces of the lance-heads are elaborately decorated. Some lances have a lozenge-shaped perforation in the socket-piece beneath the head."

Parkinson (p. 354) ascribes the gum to a source in the nuts of the *Parinarium laurinum*.

The type of socketing is most clearly displayed in 3362 (Plate IV, fig. 2), in which we have our best view of the true socket as between the single knob and the pair of knobs, extending from the shaft to the blade. As in the obsidian spears of the Admiralty Islands, we interpret the transverse band as the solid central block of the socket supplying the individual strength which it must possess in order to carry its double engagement with shaft and with blade. On the proximal side of this block we regard the first unit in its double appearance—once on each face of the piece, as slotted for engagement with a broad and thin tenon on the end of the shaft, and this tenon I find continued in gradually decreasing sharpness of outline in the three pieces; viewed in 3362 it is that lateral wing which extends downward from the haft to the end of the socket, where it is cut off with a sharp angle to the blade. From this point onward we shall find no difficulty in reconstructing the hypothetical tenon as shown in the figure (*a*) drawn from 3362. The principal lines of tenon and socket are readily identifiable; the pair of dotted lines forming approximately a right angle opening downward toward the left are in the hypothesis that bearing of the tenon which engages with the slot of the socket; the dotted circles represent the positions of two of the knobs which appear on the club. By the same process of subtraction, in this instance dissecting the tenon from the combined unit, we are able to reconstruct the socket-piece (fig. *b*). The central transverse area is solid, the upper and lower units are slotted in the plane of the sketch, and the right-hand edge carries the slot around so as to admit upon two bearings the tenon within the upper unit and the downward extension of its edge, the blade within the lower unit as far as the dotted line. From this very clear picture of the two constructive pieces we shall have no difficulty in discovering the same elements similarly situated in respect to one another in the much ruder pieces; the ruder of the two, 3361, has indeed given the clue to the hypothesis of this structural tenon, for it is only thus that we can comprehend that initial element which in the detailed description of the piece I have characterized as an extra unit. The faces of the socket in 3362 are uniformly treated in twine patterns, and with this we rehearse from Moseley "the upper turns of twine are arranged in diagonals, etc."; the tenon areas which show outside the socket, the upper panel within the ridged angle, and the inner wing are treated in parallel lines suggestive of twine wrapping; the same treatment is repeated on the left wing of the blade-socket, probably through the symmetrizing principle, for this can not be considered part of the

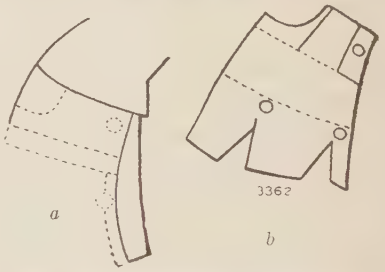


FIG. 2.—Reconstruction of tenon and socket.

tenon. In 2478 the socket ornament is found only on the central member of the blade socket, the remainder of the unit having been reduced to mere ribs. The tenon ornament, together with the same left wing of the blade-socket, is clearly treated in twine patterns. In 3361 the central member of the blade-socket lacks ornament, the remainder of the unit being mere ribs; but the socket spaces are covered with a rectangular reticulation which extends over tenon-spaces and over the blade, quite characteristic of a piece which is altogether a lifeless following of a set pattern without the slightest comprehension of its significance.

Yet just as this rude piece supplies the clue to the interpretation of the shaft-tenon, so does it afford the explanation of a distinctive element of the construction whose consideration we have postponed to the clarification of the socket problem. Following the Admiralty Island method, we might postulate the fixing of the socket in both its holdings by the use of gum, of which Fiji has abundance, and by twine lashings. We have in Nuclear Polynesia abundant proof of the employment of these two materials in combination; in this museum crescent club 3186 *d* had been so effectively repaired by these two agents as to be serviceable for combat and quite as good as new. In the sketch of the socket-piece we observe three knobs and find that they appear in all three pieces—one in the inner right-hand corner near the shaft, the others in the slotted part of the blade-socket, one at the upper corner of each of the angles which divide that region into three members. These knobs on one face of each club are exactly matched in position by precisely similar knobs on the other face. In the extremely illustrative 3361 we find in addition a panel between the upper left ribbed angle and the central unit, and in this panel are three pits somewhat carefully drilled, and these pits correspond with similar pits on the other face; furthermore, each of the three large knobs on each face carries a similar pit. Additional to these drill-marks, which so correspond on one face and the other that they might be the two extremities of a perforation, we find on the small remnant of the central solid unit of the socket-piece and upon the central member of the blade-socket drilled pits ordered in straight lines and quite as distinct as are the others, the sole reason for setting them apart in independent consideration being that they do not exactly correspond in position on the two faces. The only meaning which it is possible to attach to these prominent knobs is that they represent from the stone prototype pegs which served to anchor the several parts of the combination, the upper single knob spiking the shaft socket to the tenon, the lower knobs similarly spiking the blade within its socket. Particular significance attaches to the upper panel in 3361 with the drill-mark suggestion of perforations; they quite confirm the spiking suggestion. I can not now recall, either from experience in the life of the South Sea or from collections of ethnica,

any other example of the use of the spike. It is easy to comprehend how in the case of such heavy implements as these clubs devoted to uses essentially violent the need might arise for a firmer adjustment of parts than is provided in the Admiralty Island spears by gum and lashing.

The ornament of the blades in these three pieces introduces a problem of intricacy still greater than that of the socket-piece. Of course the shape is meaningless in any art of wood; it is clearly the conventionalizing of some stone form. The markings in themselves are without meaning. Because of their engagement with cutting-surfaces it is impossible to look upon them as in the least associable with twine lashing, which serves satisfactorily to explain the decoration of the socket-piece. Disregarding the difference in the markings of the three pieces as mere variety on the part of the clubwrights in the interpretation of an imperfectly comprehended motive, we find that all are congruent upon certain details and upon the interrelation of those details. These are as follows: Centrally situated on the blade-face a quadrilateral which appears as a well-designed lozenge or in poorer execution as kite-shaped figures; in 3362 this lozenge is clearly divided into four distinct members; engaging with the upper edges of the quadrilateral and sweeping from its median diagonal, lines of decoration reach to the cusps of the blade at its edge; between the lower edges of the quadrilateral and the next preceding unit of design are two triangles with their bases resting on the edge of the blade. Merely as scratches on a wooden surface these represent nothing which can have any meaning. I regard them as carrying out a design of really much-advanced draftsmanship—the line representation of the high lights of a varied surface—every plane represented by diversity in its linear representation quite as is done still in pen-and-ink drawings. This could have no particular application to the ordinary type of stone or shell axe; these are rubbed down to a surface which displays no variety. After long study of each detail of these pieces I am led irresistibly to the obsidian and the high lights upon its fracture surfaces, which under skilful pressure tend to considerable regularity of conchoidal fracture. I assume, therefore, as the prototype an obsidian fragment sufficiently large to serve as an axe-bit, its mounting in a slotted socket, its compaction with gum and twine lashing and pegs. In all except the pegs and the size of the blade we can find all these elements in the remarkable obsidian spears of the Admiralty Islands. It has been a most intricate elucidation; so many critical elements of the composition have had to pass under individual review that the end may have been obscured in the detail; but now that it is assembled in its simplest statement I find that not only is that explanation satisfactory to my best judgment, but it is exclusive. No other explanation has sufficed; interpretations which have arisen for consideration in the case of individual units have failed completely

when it was sought to extend them to another unit. The obsidian prototype is the only one in all my acquaintance with South Sea motives of design and with the handicraft in which they find expression, which accounts for all these units.

There remain for our consideration the pieces with saw-teeth on the cutting-edges. There appears to be a series associable by the number of edges carrying the teeth. A uniserial type is represented in ANSP 15744 (Plate IV, fig. 6), a horned club with large and distinct teeth on the edge opposite the horn. That this type may become biserial appears on a club in Krämer's possession (Samoa, II, 216 *b*). The *talavalu* clubs are all biserial (Plate III, *d*, *e*, *f*). Then follows a triserial piece (fig. *a*) and a quadriserial piece (fig. *g*); in each of these we find an additional element in an alternating series of much smaller teeth of a purely decorative purpose. The type engages somewhat with certain of the banded *lapalapa*, for Krämer figures (Samoa, II, 216 *c*) a form which has developed its multiple angular banding effectively into teeth and exhibits a satisfactory evolution from the museum piece 2273. We must regard all the toothed clubs as metamorphs upon the weapon of the sawfish. We find in the museum one of these fish appendages which has been rived longitudinally, edges slightly rounded for grip—a very effective implement of bodily harm anywhere within the limits of mayhem and murder. The uniserial and the multiserial clubs of this type represent various arrangements of such rived saws; the biserial represent the saw in its natural order. (Parkinson, 420–5, figures a mounted saw from Wuvulu and Aua.) But when we pass beyond the simplicity of this identification of the saw-teeth we find difficulties in its adjustment to the shaft. In the *talavalu* three of the pieces (figs. *d* and *e*) end in a strongly marked pyramidion, and 2272 has a still more remarkable terminal in the form of a square plate. But the natural end of the saw is slightly curved in the arc of a circle and there is no increase in thickness which might suggest the median expansion of the wooden pyramidion. In the pieces figured as *a*, *f*, and *g*, the end of the head is distinctly cupped, quite in the opposite sense from the pyramidion. In the biserial clubs, except figure *f*, there is a distinct shoulder on the shaft out of which the blade arises, and in figures *a* and *g* we find at this point distinct plates respectively triangular and quadrangular. It seems best to regard the use of this motive as already in a secondary stage and conditioned by added ornament, which is not in nature associated with the saw. This is most distinctly the case of the horned club ANSP 15744. This is readily comprehensible as the addition of the saw metamorph upon a type of club already established in some other motive, and in ANSP 14522 we are able to discover this type without the saw addition.

CHAPTER V.

ADDITIONS AND ORNAMENT.

After the club has been worked into its conventional shape it undergoes further treatment under the recognition of certain needs in its effective utility and of certain almost instinctive feeling for extra ornament or for the preservation of certain memorable events with which the weapon may have been associated, or a suggested promise, the equivalent of a threat, that in no long time it will be associated effectively with certain events. These additions to the piece fall into two classes. In the first class certain objects are added upon or partly into the substance of the club; in the second class by incision certain portions of the club substance are removed in accordance with some regularity of plan in order to improve the appearance of its surface.

In the first class we are to consider the employment of sennit and leaf ties upon the club, of ivory and other inlays into the surface. In the second, and much the more complicated, we shall have to devote considerable attention to the style of the engraving of these clubs and to the amount of the surface of each thus enriched.

The additions to the clubs are ties of pandanus leaf and of a few other materials intended for adornment, and of more or less extensive service with sennit intended in part to improve the grip of the weapon.

Pandanus ties are found on 8 Fijian weapons—billets 3184 and 2489, rootstocks 2482 and 3783 (Plates II *c* and V 2), serrated 3790 and 3187; and in the lipped clubs 3791 *a* and 3791 *b* we find these ties set together as a parceling.

A string of beads derived from foreign intercourse is tied in two courses, quite after the customary manner with pandanus, near the head of the Fijian rootstock 3782 *b* (Plate V, 4). In the Fijian rootstock 2485 (Plate V, 3) a double tie of twined wire-like rootlets is found, the two coils being in opposite directions. In the serrated Fijian club 3187 the whole shaft is covered with a complete spiral wrapping of nassa shell strung on coir fiber, and the security of this somewhat awkward application is effected by a parceling of pandanus leaf applied to the wood as a bed upon which to wind the cord of shells. The same application, but in this case of bast, is found in 2485, where the grip winding is of sennit upon this bed. In 2482 we find pandanus ties themselves bedded upon turkey-red calico.

A singular addition is found in 3100, a Fijian rootstock, where a seamless collar of bast enriches the shaft near the grip. This bast must have been pounded until its outer and inner attachments with the bark and the wood of its sapling were released, then slipped over the haft end of the club as far up the shaft as it could be strained, and

then allowed to contract into a firm clasp. It is the sole instance in the collection of this treatment.

The employment of sennit will call for inspection along several lines. In some instances its purpose seems to be to afford a better handhold, yet in others the grip is left bare and sennit is applied elsewhere. This arrangement is peculiarly marked in three Fijian rootstocks, 2482, 3782, and 3782 *a*, in which the shaft is parceled, the grip bare, and between the grip and the end of the haft a wholly ornamental service of sennit. Sennit upon the grip is found on the billet 2490, the rootstocks 3782 *b*, 2483, and 2485, all from Fiji, and on the Tongan crescent 3186 *d*. Omitting the grip, but extending over the shaft sennit is found on the rootstocks 2482 and 3782, the pandanus 2487, and the lipped club 3180, all Fijian. Sennit parceling is observed on the rootstocks 2482, 2483, 3782 *b*, 3782 *c*, the *ula* 2469, and the lipped clubs 3791 *a* and 3791 *b*, all from Fiji, and on the Samoan *talavalu* 2272 and the *lapalapa* 2273, 2274, and 2278. Sennit service is found on the haft of the Fijian billet 3780 *a* and rootstock 3782 *a*. Stains upon the polish of pieces serve to identify more or less clearly the use of sennit on the Tongan billet 3143, the Fijian rootstocks 3782 *c*, 2479, and 3100, the Samoan *lapalapa* 2276 and 2277, and the Tongan crescent 3186 *d*. The whole shaft of the Fijian lipped club 3186 *b* is covered with sennit. Krämer (Samoa, II, 338) reproduces a Fijian pandanus club in which the shaft from grip to bend is covered with some sort of plaited application.

TABLE 51.

	Fiji.	Tonga.	Samoa.
Sennit . .	23	3	6
Leaf-tie .	8	0	0
Inlay . . .	15	8	0

Another detail of ornament by addition is the use of inlays. The material employed is the ivory of the cachalot in 3 Fijian pieces, 3147, 3782 *c*, and 3783, and 3 Tongan pieces, 3175, 2262, and 2263; human teeth in 3782 *c*, 3783, 3784, and 2486, all Fijian; nacre of the pearl oyster in the Tongan 1975. These inlays are found in the end of the haft in the Fijian billet 3147, and the Tongan paddle 2262 and crescent 2263; and in the end of the head in 4 Fijian pieces, the rootstock 3782 *c*, the *ula* 3784, the pandanus 2252 and 2486, and in the Tongan crescent 2263; and generally about the head in 3 Fijian rootstocks 3175, 3782 *c*, and 3783, in the *ula* 3784, and in the Tongan paddle 1975.

A brief tabulation of these additions in ornament (table 51) will tell its story distinctly. In this it is quite plain that these are characters of the Melanesian art of Fiji and in varying degrees have been adopted by the Polynesians of Tonga and of Samoa.

We next pass to the study of the incised ornament, making the note that all of the carving of these pieces is intaglio; the club has been completely shaped and polished before beginning the decoration. The work is altogether free-hand; no guide is employed to assist the artist

in reproducing typical forms which he has in mind, yet great uniformity is maintained, quite as in the highly conventionalized and stereotyped tattooing pattern of the Samoan men. A very few pieces in which the ornamentation has not been completed will afford us a glimpse at the method of these club-carvers; these are 2286, 2499, 3099, 3100 *a*, 3100 *b*, 3172, 3182 *a*, and 3783.

The investigation may begin by listing for each type of club the point at which the ornamentation is applied.

TABLE 52.

	Piece No.		Piece No.
Billet:		Mace:	
Complete..	3184, 3147 *a*, 2267, 3144, 2265, 3177, 3147, 3780 *e*, 2493	Unfinished.	3792 *a*, 3792
Flange....	3143	Talavalu:	
Grip.....	2492, 3185, 2491, 2488, 3780 *d*, 3780, 3780 *a*	Unfinished.	3788
Unfinished.	3100 *a*, 3100 *b*	Lapalapa:	
Rootstock:		Complete..	2270, 3178 *a*, 3172 *a*, 3172 *b*, 2266
Grip.....	3175, 2481, 3782 *c*, 2480, 1974, 3303 *a*, 2479, 3100, 2482, 3782 *a*, 2484, 3782	Unfinished.	3099, 3172
Unfinished.	3783	Paddle:	
Ula:		Complete..	2257, 2258, 2256, 2260, 2262, 3146, 2261, 3145, 3355, 2269, 3359, 3174 *a*, 3356, 2271, 1975, 3358, 3360, 3174, 2259, 2268, 3357
Grip.....	2468, 2467, 3785 *a*, 3785, 3784, 3786, 2460, 2463, 3784 *a*, 2461 *a*, 2466, 3188 *a*, 2461, 3188	Unfinished.	2257 *a*, 2264
Pandanus:		Carinated:	
Grip.....	3183, 2487, 3182, 2252	Unfinished.	2286, 2499
Head.....	3182 *a*	Crescent:	
Unfinished.	3182 *a*	Complete..	2263
Lipped:		Horned:	
Grip.....	2495, 2473, 3181	Head.....	14522, 15744
		Mushroom:	
		Head.....	3789, 15743

When the club ornamentation is summed by the three greater archipelagoes which go in varying proportions to make up the culture-group of Nuclear Polynesia, the most significant results are established. The figures in table 53 denote the number of individual pieces; the percentages are derived from the respective sums as presented in table 52.

The sennit ornamentation has been established as progressive from the Fijian into the Proto-Samoan communities; this showing presents a reversal of the culture current. Intaglio ornamentation of the club is most highly developed in Tonga, and it is proper to regard that as the source of the carving which has gone over into Fiji. We may discover other details of interest. Tonga almost uniformly covers its clubs with carved decoration and makes each weapon a thing of deadly beauty; in Fiji the decoration is most commonly applied to the grip only and suggests utility rather than esthetics; in Samoa decoration runs appreciably to the head.

A secondary ornamentation is found in a few instances—chunam applied to incised decoration and rubbed to a continuity of surface with the polished wood. This is found in a very light and poorly finished application in the Fijian rootstock 3782, where it amounts to little more than a coat of whitewash. In the billet 3100 *a*, of the same provenience, a neat but slight use is made of this material. In these two, and, in fact, in all instances, the chunam is applied only to the head of the piece, probably because it might tend to obliteration if employed on surfaces where the hand might exert a pneumatic suction.

TABLE 53.

	Complete.	Flange.	Grip.	Head.	Per cent.
Fiji:					
Billet	5		7		
Rootstock			11		
Ula			14		
Pandanus			4	1	
Lipped			3		
Serrated				1	
	5		39	2	63
Tonga:					
Billet	4	1			
Rootstock			1		
Lapalapa	1				
Paddle	21				
Crescent	1				
	27	1	1		85
Samoa:					
Lapalapa	2				
Serrated			1		
Horned			2		
Mushroom			2		
	2	1	5		21

We seem to sense a method peculiar to work in this medium, a recognition of the value of the contrast of the white upon the dark reds and blacks of the wood. In the Fijian lipped club 3791 the plain and chunamed panels alternate on each face and alternate as between faces. In the great Samoan mushroom club ANSP 15743 it is seen that on one face once covered generally with chunam an effort has been made sedulously to pick out the white from alternate transverse bands of the design, and in the horned clubs of the same collection, 15744 and 14522, a distinct effort at such contrast is evidenced by bands of ornament in the former and by the broad interspaces of ornament in the latter (Plate IV, figs. 6 and 7).

Before attempting the detailed examination of the intaglio ornament, we should obtain the macroscopic effect of the decoration as a whole. Reference should here be made to Plates I, *d*, *f*, *g*; II, *a*, *c*, *f*, *g*; III, *a*, *b*,

h, j, k, l; V, 2. It will at once be manifest that all of this ornament is at base a skeuomorph of plaited material or basketry of various narrow or broad elements. In the clubs of this collection the only material which is found in employment to cover any considerable spaces is sennit, and this is not applied in basketry, but always in coil; the only exception is the pandanus club in Krämer (338) which exhibits a basketry of some material applied upon the greater extent of the shaft. Yet basketry application upon clubs, in fact upon all sorts of weapons, even upon arrows, is distinctive of the Buka culture in the Solomon Islands, a very suggestive circumstance.

In studying the units of decoration we shall begin with the most common forms and the most common combinations of those forms, and we are at once struck by the preponderance of the rectilinear. The references by number in the following discussion are to figures which appear seriatim in Plates IX to XVII at the end of this volume.

The principle of the ornamentation of these weapons rests upon the skeuomorph, pictures of lashings of sennit and of plaitings of basketry. The biomorph is almost wholly absent. The spiral vine on the Fijian billet 3147 *a*, figure 58, may be taken as in part a phyllomorph; the leaf has scarcely undergone so much as a conventionalization, except that we recognize that principle as beginning in figure 132, where we find an unbotanical added ornament, and in figure 133, where a decorative margin has been supplied; the vine itself falls properly into the class of phyllomorphs, for while it retains its natural twining about the trunk, it is portrayed by the zigzag sennit-derivative. We recognize no biomorphs; the nearest approach thereto is the octopus design in figures 91 to 95, and at the most these figures are but highly conventional forms.

We shall consider in the first place those elements of design which are at the beginning rectilinear and which in the main diverge very little from the straight line.

Spatially the most considerable of the rectilinear units is the banded zigzag. I incline to establish as the primitive expression the zigzag with limiting bands on each edge. It is clearly a pictorial representation of the ever-present sennit of coir. As with any cord, length indefinite and width effectively negligible, its first macroscopic impression is that of parallel lines; thus we obtain the parallel bands in this element. In early decoration arising in other culture areas, a twine is represented by parallel lines with curved or even rectilinear diagonal lines across the length. But in Nuclear Polynesia no twine is found. In the universal sennit cordage of that culture the eye picks out diagonal lines in one direction and equally diagonal lines in the other, yet not quite equally in the visual sense, for on either face of a three-part sennit one part is prominent as a zigzag, while the other parts are somewhat hidden by the leading cord, as may readily appear to any

person who will take the pains to plait a braid of three divers colors. The primitive design of zigzag with two limiting bands is found in figure 20; in the lower panel there are three quite distinct units separated by null spaces; therefore the double banding is visible. But inasmuch as in most structural uses the sennit is employed in coils, the common picture to the eye is of two bands brought into the most intimate approximation; in fact, the band being really an optical illusion, the result is the obliteration of one band and the pattern is a continuation of zigzag and band in indefinite alternation until the end of the pattern is reached with a limiting band. This is found upon so many of the clubs as to call for no special reference. In figure 1 in combination, in figure 2 independently, is found another movement in the sennit convention—two zigzags with limiting bands for the zigzags as a pair. This follows the same explanation; it is a picture of a five-part sennit, a form frequently occurring in Polynesian handicraft, therefore quite a fit object for representation. In figure 3 a finely extended type of band-and-zigzag occurs, and in Plate IV, figure 4, a most brilliantly executed unit of the same. That the zigzag is the essential principle of the unit is made clear in figure 42 at the left, where broad surfaces of the piece intervene between zigzag elements, and it has not been necessary to carve any limiting bands. In figure 4 is found an addition which is unique; if but one of these triangles were present it might be proper to comprehend it as a partial stage in the carving of the general zigzag pattern; but the fact that the triangles are found on three adjacent lines and that they arrange themselves in line is indicative of purpose on the part of the engraver to satisfy some decorative principle which appealed to him. In figures 6 to 13 are presented several of the more frequent forms in which this prime zigzag unit appears in composite panels of design.

Sennit itself is found applied to the clubs of Nuclear Polynesia only in coil; generally it is not present on the grips; yet the sennit design laid on longitudinally is the characteristic ornament of the club-grips. It is clear that actual sennit thus applied would hamper, not improve, the clutch of the hand upon which life itself is to depend when the weapon is to be used. We are, therefore, wholly justified in holding the opinion that in the stage of decorative art at which the clubwrights have arrived the recollection of utility has quite vanished and that the design is employed as pure decoration.

Figure 5, unique, gives a broadly staggered line for which no explanation is forthcoming.

In figures 6 and 7 occur the only examples of a design upon wood which is frequent upon the human skin in tattooing; the Samoans call it *selu*, from its resemblance to the long-tined and narrow comb of that name. The rudest form is found in series facing one way in figure 7; reckoning from below upward the number of teeth—four of

3 teeth, two of 4, one of 3, the remainder of 4. In figure 6 the *sclu* are presented in three opposing pairs separated by a band—one of 5 teeth, four of 6, and one of 7.

In connection with figure 4 we have just suggested the possibility that the triangle might stand for an imperfect stage of the carving of the zigzag. The same holds true of the serration unit; it might represent more or less of a zigzag unit in which the angles of one face had been carved and the designer had not yet begun to apply his shark-tooth burin to the opposite face. Yet there is at least equal probability that this unit of design came independently into existence, for the carver need but look at the edges of the shark-tooth with which he is working and he will find a motive in nature. The units in which we find serration consist of teeth, always angular, arising from a base whose bottom line is cleanly rectilinear. This angularity is constant; if it were an incomplete sennit motive we should look to find the tendency toward smooth curves which is clearly apparent in figures 1 to 4. The serration units occur in opposite-facing pairs separated by a bar in figure 6 and in the two wonderfully beautiful figures 33 and 34. In figure 82 is found a solitary instance of this opposition outward in which the septum bar is lacking. Without septum and facing in the same direction serration in pair or series is found in figures 43, 81, 88, and 89, and appearing in the single unit in figures 15, 45, 81, 82, and 83. This decoration appears in the field with birds in flight in 81, 82, 83, 88, and 89; we may be justified in this connection in looking upon it as a sky sign, a cloud derivative. In figure 104, diagonally approximated to the conventional feet of a man, occur two units of a design very close to the serration; in the upper there are 6 small rectangular figures dependent from a rectilinear bar, in the lower 3 such figures. If this be not a degradation form of serration the motive is by no means apparent; the beam-and-billet motive is contraindicated, for the reason that in the abundantly thatched architecture of Nuclear Polynesia beams and rafters are structural details which never appear in plain sight.

The next unit of design which arises for examination is the lozenge, including therewith a few figures obtainable by the same method but varying in shape from the roughly quadrangular to irregular polygonal forms. At the right of figure 1, in which we find approximated zigzags, if we reckon up from the bottom we are able to discern the germ of 5 lozenges by reason of the fact that in beginning the carving the artist had started with his lines in opposite directions and for some little space was able to maintain this opposition before being conquered by the tendency toward uniformity which has in the end resulted in parallelism in place of antagonism of the lines. The same is true in figure 2, where at least 4 reasonably good lozenges occur at the right of the design. In figures 25 and 26 we shall have to recognize the triangle

motive in design, the lozenge being the space left unexcavated when two sets of triangles are carved in opposition apically; of course, in figure 25 there is nothing to serve as a guide; the lozenges may have been the principal theme and the excavated triangles merely a means toward that end, as in figures 28 to 30, and this comports with the far greater frequency of composition in surface over composition in line. But, on the other hand, figure 26 shows that the lozenge was held so objectionable by the artist that he did his best to erase it by a scored line. In the brilliant designs from the Samoan mushroom club ANSP 15744 various handsome lozenge types are carved; in figure 30 a lozenge of chunamed line is produced by crosses saltire of diagonal lines transformed into two concentric lozenges of surface by the excavation of upper and lower triangles. In figure 29 is found an enrichment of this basic motive by the excavation within the inner lozenge of surface of opposing triangles divided by a distinct septum. In figure 30, by the omission of all the right diagonals of the crosses saltire while retaining the outer triangles, a most effective decoration is produced in the slanting incomplete stages of the lozenge. Side by side in figure 27 occur lozenges of surface and lozenges of line, the latter being enriched by interior dots. In figures 77, 78, 100, and 103, from the same piece, a surface of irregular lozenges derived from cross-cuts is obtained; this effect, covering a large area, is to be seen in Plate XI, *b*. Very irregularly worked out, the same lozenge product of cross-cutting is seen in figures 16 and 81. Another form of treatment of the lozenge is seen in figures 45 and 56, a continuous line of small lozenges employed in the same sense as the zigzag.

Recurring to the broader aspect of decoration units, the natural motive of the pinnate leaf of the coconut is next to attract notice—a clear series in figures 14 to 19, both with and without the central stalk of the leaf. In figure 14 there is laid before the view the actual leaf, one above the other like tiles, and the blank surfaces of the underlying base showing through in quadrangular figures where the leaf has been nipped short. In figure 15 are composition forms in which opposite pairs of leaves with stalks are set within lozenges, and in figures 19 and 20 are stalked coconut elements entering into composition with other units of design. A very bold yet altogether simple treatment of this motive is presented in figure 17, in the two bottom triangles of which is found a suggestion of the solid quadrangles of figure 14. From the simple picture of the trimmed leaflets of the actual coconut it is not difficult to find evolution as the decorative value of alternation of diagonal lines becomes recognized, and where more than two such lines are found it is proper to adopt the common designation of herringbone. In figures 20, 21, and 23 are surfaces of 3 diagonals without stalk, and in 23 of 3 diagonals with stalk, in one panel of which the pattern with 2 diagonals and the pattern with 3 compound diagonally.

In the elegantly executed figure 24 occurs a continuing repetition of the diagonal unit with stalk, in which the memory of the coconut base has quite vanished.

As the pinnate coconut-leaf motive has been observed to pass beyond nature into more than two diagonal elements, so some instances will be found in which but one of these elements remains in areas more or less extensively treated with parallel lines. It is only for convenience of record that these are listed with the coconut derivatives, for parallelism is of such frequency in things seen that its use in decoration may rest upon a variety of motives. Thus in figure 81 we do no violence to interpretation if we regard it as a sky symbol, and following the bird clue we may see the same use in the figures 83 to 88. In figure 41 is a finely executed unit of fine lines forming a grid. Under the feet of the man in figure 101 are found vertical lines just below a horizontal bar; undoubtedly this associates with the element in figure 104, where the two are united. In figures 106 and 107 a considerable repetition of parallel lines seems in some fashion associated with a burden carried over the shoulders or at some distance from the body in the hand; in this we must dismiss all idea of numeration by repetition of line; counting is frequently done by laying down sticks for each unit or for each decimal or vigesimal group; but I have never seen it done by marking scores, except under the influence of missionary education, and, despite the frequent occurrence of writing materials now, that method still remains uncommon.

The use of the dot or fine point in this incised decoration is notably rare. In figures 36 and 40 we may see how the dot may arise as a degradation product of the fine line of basketry. But the true dot, employed as a decorative unit in itself, involves much labor in this style of ornament; if the pattern were traced by the incisions nothing would be easier than to make a dot, but here, in the essential condition of three dimensions, each dot is the point of a cone which must be cut down so as to leave the tip clear upon the surface of the piece. Dots of this type occur on but two clubs—in figure 27 centrally situated in each lozenge of the diapered panel, in figure 41 similarly placed in the exterior dentelles of the zigzags and twice in the interior dentelle. I can neither recall nor discover any word in the languages of Nuclear Polynesia for this ornament; for an incised or punctured dot the people employ *togitogi* made nominal from the verb *togi*, which describes the action of a bird in pecking with the bill, but I am by no means sure that any of them has advanced to the point of recognizing in such a point upon the surface a picture of the mark of a peck which goes below the surface, for the crux lies in the recognition of the pictorial method.

The triangle as a detail of basketry skeuomorph is extremely common on these clubs. We present of one type the triangular panel in figures 11 and 37 and the triangular subdivision of the rectangular

panel, simple in figures 18, 39, and 48, compound in figure 12. Triangles which result as an end-product of other design are recognizable in some few instances; thus in figure 26 mention has already been made of the artist's objection to the lozenge and his correction thereof by a carefully scored line; the result is a series of triangles in all save one of his lozenges, where his tool failed to bite; triangles as an end-product of the coconut-leaf design have been pointed out in connection with the brilliant example in figure 17, in which a triangle represents each wing of the pattern; in figure 92 the coconut-leaf end-triangle is found single and combining both wings; in figure 16 this finial triangle has become the important element and the merest suggestion of the coconut-leaf is discoverable, and even that supported by subsidiary triangles which have lost all of the motive. In figure 4 note has been made of the possibility that the three triangles may represent merely a transitional stage in the carving of the basic zigzag, yet it is quite clear that the triangle was a satisfactory ornament in the interruption of the general design. At last a group of designs is reached in which the triangle is carved for its own beauty of form, and is recognized as an agreeable unit of ornament. The simplest instance is in the series of small triangles in figure 22, each triangle independent of its neighbor and all in the same apical direction, of which the drawing gives two opposed instances. This is of the type of serration which has already been examined; it differs in the essential element of the base-bar which characterizes the serration unit. The very carefully elaborated Samoan mushroom club (Plate I *g*) gives an excellent instance of triangle decoration in figure 42. As can be seen upon the general view, each wing of the head is treated with two longitudinal rows of triangles. The inner series is set staggered along a common base-line, with the free apices pointing in alternation inward and outward, and these triangles are simple. The outer series consists of two rows engaged; the inner row pointing outward is simple, the outer row pointing inward is compound. The artist's scheme of composition of the latter triangles calls for a convention of 5 rows of subsidiary triangles with an increment of 1 in each row to 5 at the base. In the five triangles in this rubbing, the first not having been rubbed entire and the matter not of sufficient moment to call for a complete collation of the whole club, it is observed that the upmost triangle is obscured in the apex of the composite; the series are 1–2–3–3, 1–3–3–4–4, 1–2–2–3–3, 1–2–3–3–4, and 1–2–3–4–4, the general effect being produced by increasing the size rather than rigidly numerically. In the same club still another triangle design occurs which combines the use of surface and line to develop the pattern. There are two lines of compound triangles engaged; in the upper line each triangle consists of a relatively broad line on each of the engaging faces and a much thinner line along the outward base, and each carries an interior

triangle if we consider the design represented by surface, or one and two excavated triangles if the design be regarded as incised; in the lower line the composites differ in having the subsidiary surface triangle double, producing in the excavation the series 1–3. In figure 31 is found a triangle variant in which the ornament is clearly produced by the incision, three associated triangles, of which two approximated have a common base direction, the third presents its apex slightly between the apices of the pair with its base outward, a most effective composition. Figure 97 is from one of the two triangle inlays on bosses of the club illustrated in Plate VII *a*.

The carved basketry skeuomorphs on these clubs show little variety. In general, each element of the web is pictured by straight lines, the material being a long leaf, and the fact that such a leaf produces the effect of parallelism of right lines is clearly apparent on the club illustrated in Plate VII *b*, where such a leaf is seen tied about the shaft. There are but two groups of the basketry. The former is rectangular without septa in figure 35, with septa in figures 36 and 37. The other is a picture of diagonal weaving, in its simple type and without septa in figure 38, composite and with septa in figures 39 and 40, which represent different directions of the diagonal member.

No inconsiderable time has been spent in the measurement of the clubs of this collection; the record is crowded with detail of length and girth and grip. In this mensuration there is acquired a mental picture of the amount of the incised surface, roughly 150 square feet, minutely covered with incisions in which the units rarely amount to a quarter of an inch. This is the floorage of a small room. In the preceding pages we have considered the distinctive types of this art of the savages, some of the types enormously repeated. Now we take up in comparison the decoration employing curved lines. In 15 figures (43 to 57), and one of these to be rejected as an erratic of Maori provenience, we are not dealing with types selected as representative of great spaces, but with the individual instances of curvilinear ornament. Two of these are the ornament of shaft ends in which the circle is set by the form of the piece. If one will take a measure and set upon the floorage a space just 1 foot in length and a single inch in width, he will find before him as nearly as possible the sum of all the curvilinear decoration and its relation to the rectilinear ornament.

There lurks here a most interesting problem in the evolution of design. It may not now be possible to solve the problem, yet it is something accomplished merely to be able to state it. So far as we are justified in drawing a conclusion from this material it is this: Nuclear Polynesia has attained to a very satisfactory stage of development in the employment of right lines and combinations of right lines for decoration; it is scarcely at the beginning of the employment of any

of the curves. This applies to this particular method and material, to engraving, to glyptic processes in the flat.

It is not that the Fijians, the Tongans, and the Samoans do not know and employ curved lines in other material and in other methods. In their weaving and basketry they have not reached the device of employing stepped forms to suggest the curve; their decoration in this method remains right-line and angular. The same is true of their ornament with sennit; a high degree of angular ornament characterizes their great bales of this substance. In their *siapos* they employ the curve in many ways, both in the ground-pattern obtained by rubbing the bast material over a pattern board in which the device is expressed by cloisons, and in free-hand drawing with a pandanus nutlet frayed to a pencil for the application of liquid pigments. But in two of their arts—and in method these two have much in common—in tattooing and in wood engraving, the work is almost wholly rectilinear. True, the tattooing upon the thighs produces the effect in one detail of a finely sweeping curve, but it is shortly seen to be a straight line in itself and to get its curvature from the shape of the leg, just as in figure 58 it is manifest that the vine unit is in a right line and the fine curve effect upon the club derives from the cylindrical surface upon which it is drawn in a spiral.

This refraining from curved lines upon the clubs applies only to the ornament upon the flat or cylinder; in space of three dimensions these clubs exhibit remarkable grace in the employment of curves (Plates I to III). It can not be a difficulty inherent in the material and the cutting-tool, for the very clubs which yield so grudgingly less than one-twelfth part of a square foot of curvilinear decoration carry at least 80 designs in which curves are freely used in depicting men and other animals and in one case leaves. The burin is a shark-tooth; the method is that of pecking and slicing; the durability of each tooth is brief; rarely does the enamel surface hold up beyond three or four cuts; but life in the tropical islands is full of shark-teeth. The texture of the wood does not condition greater ease along the straight line; there is no grain to consider; it is as dense as boxwood and may be carved with the same readiness in every direction. It seems to be clear that the use of curves upon the flat surface, two-dimensional ornament, is just coming into the favor of the island engravers, and that under the strong conservatism of savage intellect the two ancient decorative arts of the club and the skin have managed effectively to avoid the new ideas.

Two of these figures show the curvilinear treatment of the end of the club-shaft. The limiting circle in each case is the product of the work in three dimensions; they are the ends of masses made cylindrical by chipping and rasping from a timber source which is in itself cylindrical by nature. In figure 48 occurs a central depression which is unique,

possibly an evolution upon the cupped depressions so frequent on the missile clubs; it differs therefrom in having a flat floor and sides vertical thereto. Between the limiting circles we find that the artist has dealt with great vigor in the problem of ornament. In the radiant lines he varies but slightly from the trisection of the circle; the left radiant is exactly 120° from the upper; the right is within 5° of mathematical accuracy, a remarkable feat for a man working solely by the eye and without dividers, with no knowledge of the constant π, even ignorant of the use of a piece of cord for measurement. Not only are these points established with satisfactory precision, but in the treatment of the three wedge-shaped bodies he displays a recognition of the divergence of the radii of the circle. There is commendable vivacity in his treatment of the concentric arcs by setting them in panels and in his finish of the whole composition by the addition of an outer circle complete. In figure 49 much cruder work appears, two concentric rings of band-and-zigzag, with the suggestion of an inner unit of the same beneath the obscuring four-rayed figure, the curves being most uncertain and the angles of the center piece quite away from the rectangular crossing.

The designer of the latter piece gives two more circles on the face of the shaft; one (fig. 47) a plain ring with 5 radii irregularly spaced, the other (fig. 48) with 4 equally irregularly spaced radii and a concentric ring of poor zigzag and an outer plain ring. To another designer, in figures 46 and 47, are attributed two similar figures of double concentric circles about a central circular spot, which in the latter is considerably distorted, both of these figures partaking of the general coarseness of design upon this piece. In figure 43, still by the same artist, an instance occurs of his avoidance of a similar circle of triple concentric lines by a diametrical erasure such as is seen in the lozenges of figure 26; in this case it is plain that the figure derives from the opposition of two such figures of concentric angles as found at the top of the panel, and the line of erasure is intended to hold the design to that standard. In the decoration of the great serrated club in Plate I *f* is found the employment of plain disks arranged quarterly on each face of the head; that at the upper left of the illustration is distinguished by an inner concentric circle quite near the edge.

On four clubs four instances of an arcuate figure occur, two single and convex outward, two convex inward and double and triple respectively. If there were no more than the single outward arcs in figures 50 and 51 we might regard them as sky symbols. So little intensive study has been directed upon art motives among the Pacific islanders that we are unable to establish the employment of such a figure as portraying the sky. Our utmost information as to the heavens comes from literature rather than from art; we have abundant proof in the myths that the sky is looked upon as an inverted bowl. From almost every

island-group in Nuclear Polynesia, from Polynesia of the later migrations, and from several sources in Melanesia we derive the tale of the time when the sky lay flat upon the earth and men were forced to creep until this hero or that bridged his trunk upon the ground, arched his shoulders, and with a mighty effort shoved the sky up into the place which it now occupies and made room for men to walk erect. Turner (Samoa, 198) cites briefly the variants of this legend:

"The Samoans say that of old the heavens fell down and that people had to crawl about like the lower animals. After a time the arrowroot and another similar plant pushed up the heavens, and the place where these plants grew is still pointed out and called the Teengalangi, or heaven-pushing place; but the heads of the people continued to knock on the skies, and the place was exceedingly hot. One day a woman was passing along who had been drawing water. A man came up to her and said he would push up the heavens if she would give him some water to drink. 'Push them up first,' she replied. He pushed them up and said, 'Will that do?' 'No,' said she, 'a little farther.' He sent them up higher still and then she handed him her coconut shell water bottle. Another account says that the giant god Ti'iti'i pushed up the heavens, and that at the place where he stood there are hollow places in a rock nearly six feet long which are pointed out as his footprints."

In Nanomea, Nukufetau, and Nui it is the sea-serpent who raises the sky by standing erect upon his tail.

I have been thus particular in establishing the fact that the sky does appear to these islanders a dome for the reason that we must be sedulous to avoid the error of assuming that the truisms of our own sense perception are essentially included in the psychology of the savage. It is not in nature but in our interpretation of nature that the heavens arch above us; there are races who are unable to see it in that form. But it is clear that the arch of heaven is appreciated by the people of this our present study. It does not necessarily depend therefrom that their pictorial sense has yet reached the point of interpretation whereby an arc can be taken to represent a dome, for they have no understanding of the fact that the figure formed at the intersection of certain planes with a hemisphere is a semicircle; such optical mathematics is far beyond their cognition. I should much prefer to regard these two arcs as pictures of the rainbow. We find, however, none of the accessory sky symbols which we have been led to propose in the interpretation of figures 83 and 84. Within the arc in figure 52 we find a detail of diagonals with four intervening heavy lines, something in the form of such a ladder as we, but not the Polynesians, know; this figure is unique and evades interpretation. But exterior to the arc in this figure, interior to the arc in figure 51, we find a design of parallel lines which toward the right of the latter tend to become radiant; with this we must associate the crescentic ornament of slim lozenges interior to all the arcs in figures 52 and 53, for the lozenge might readily arise as an amplification of the straight line. One character is common to this

detail in six of these arcs: the lines are graduated within the arcs and are free of any attachment thereto, and in the case of the seventh arc the exterior lines are graduated in the opposite sense and are equally free.

If the rainbow motive is feasible in the case of the outward arcs it is quite otherwise in the case of the five inward arcs in figures 52 and 53; yet if my opinion as to the lines and lozenges be correct, it must follow that the interpretation of the arc motive must lie in something commonly visualized in which position is not essential. If we had to do with figure 52 alone the mammary suggestion might arise for consideration, for that is a frequent motive, but this can not apply to the single upward arcs and is naturally contraindicated in figure 53. This attempt at interpretation has been essentially through the method of exclusion. We lack data upon which to propose a positive interpretation of the arc with graduated lines.

The last of the curvilinear designs to be examined is the loop and tie in figures 54 to 56. Two of these derive from the same piece of Samoan art; the third and far more elegant employment of the same motive derives from Tonga. There can be no doubt as to this diversity of source, for the Samoan *lapalapa* and the Tongan paddle upon which they appear are absolutely distinctive of the club-forms of the two archipelagoes.

We next take up the pictorial or illustrative decoration of these pieces, and, as has been the case in the study of the curvilinear element, these are not types, but a collection of every animal figure which has been incised upon these clubs.

Beginning with the quadrupeds, we find but four illustrations from land and sea.

The first is the dog in figure 59, a very gay little figure and unmistakable. Of the mammalia the Polynesian is acquainted with no more than five—the dog, the pig, the rat, the bat, and himself. In the Pacific the dog takes no part in the chase, for he is characteristically too slight to serve against the wild boar and he would be a nuisance in fowling with the swing net. Cheerful companion of the savage, even as his cheer bubbles out of this little thumbnail sketch, he wags his way into the affections and is eaten without a pang. Yet the dog is not without honor; he has in the Samoan courtesy speech, in addition to his common designation of *ulī*, the two honorific names of *ta'ifau* and *maile*, and the latter is employed in celebration of the politically and socially important island of Manono.

The only other terrestrial quadruped included in this gallery of art is the lizard in figure 61. It is quite possible that to the merely decorative idea there is added in this case an ulterior suggestion, for the common lizard carries an element of ill luck. If it falls upon a man from the thatch of the roof (Samoa: *to'ailesu*) it presages his

death. If the soldiers are onward on to war and a lizard crosses the path the expedition is foredoomed to disaster and in such case will surely return to make a fresh start under better omens; but if the lizard runs along the path with the warriors it is a sure sign of welcome victory; therefore in Plate III *k* it is rich with significance that this lizard is carved in the direct thrust-line of the club.

The sea-turtle is found in figures 60, 61, and 105, one quite graphic and the others assuming conventional forms. The turtle is an incarnation of one of the greatest of the war gods. We have no record of any legend of the Jonah type, such as is clearly suggested by the drawing of a human figure within the belly of the turtle in figure 105, but it is supported collaterally in Samoan custom. Here the turtle is sacred to Moso the war-god; in lands set apart by the cult of Moso the turtle was sanctified by a food tabu. In case any person to whom the tabu was not binding ate the savory meat the devotees of Moso rendered propitiation by laying a child wrapped up in leaves in a cold pit-oven, thus typifying the preparation of food for the god, from which it is an easy step to portray the god as having ingested the offering.

There are 12 pictures of various fishes; apparently 7 genera are represented.

The sting ray is presented in figure 63. This is a deathly animal by reason of its tail. The barbed bone is the instrument of secret assassination where the murderer, lacking the courage of the club, takes advantage of his unwary victim and stabs him with this dagger, whose wound is regarded as inevitably fatal. The fish is the symbol of a war-god and therefore is a most proper addition to a club.

The shark is recognizable in figures 63 to 65. I recall no legend in which the shark is associated with war. A representation of the fish was the sign of a very solemn tabu of property and forecast the punishment by the shark of any violation thereof.

In figure 66 it is permissible to recognize the bonito. This fish is the gentleman of the sea; he is entitled to a special vocabulary in Samoan speech (The Polynesian Wanderings, 352). In figures 67 and 69 there is a possibility that we find the same fish, one copy inverted; yet it is probably rather better to regard them as distinct generically, and the same is true of figure 68; I do not recognize the distinctive characters.

The four figures 70 to 73 afford us five views of an incident of the sea, an association of bird and fish and the bird behind the fish, from which it is an easy step to the bird after the fish; in all but one of these views a straight line is asociated with the group, always in the same direction, always just out of the median line, and always interrupted by no more than wing of bird and tip of fish's tail. Despite the fact that the fish is represented as very large and the bird as quite small, there can be little doubt about the subject of these sketches. All the

sea-birds dive into the water for fish; there is only one which chases it along the surface, as established by the interrupted line. This is the triple play of bonito, flying fish, and albatross; the bonito under the surface drives the silvery and toothsome fish, which takes to air in its gliding flight, and there stands an equal chance of being snapped up by the master of that element. The sight is frequent; it would naturally suggest itself to the observant artist; we may be warranted in reading into it a valid club suggestion, for the food motive was never very deeply buried beneath the surface of combat in these islands.

The bird series begins at figure 75 and includes figures 90 and 104, the first six being quite graphic, at the other end highly conventionalized; but the two very effective groups of flight serve conclusively to establish the convention (figs. 81 and 82). Specific characters are very scantily indicated in this collection.

In figures 75 and 76 we feel warranted in the belief that the same bird is portrayed, despite some slight differences in the execution, a length of bill and of tail accompanied by straightness of legs being similar in the two carvings. In figures 77 and 78 occurs a common character in the triangular form of the legs; I interpret this as a convention indicative of the web-foot of the sea-birds and shall undertake to support the principle of perspective when we discuss the far more important drawing in figure 142. Sufficient attention has already been given to the birds in the figures 79 to 82. The remaining figures are all most highly conventionalized, a plumage distinction being at least indicated in 86 and a peculiarity of head in 90 and 104. Six figures remain in which the bird is represented by a generally similar design of five angles, which differs from the five-pointed star of our decoration by the consistent absence of the reentrant angle at the base of that design, a feature which seems to represent the tail of the bird beyond any doubt. In figures 85, 87, 88, 89, 90, and 104, the rear line of this tail is remarkably straight; in figure 83 it is a considerable arc of a circle; in 84 it has been mutilated, but there persists somewhat more than a suggestion of such curvature.

Figures 91 and 92 might readily pass for extremely formal and precise drawings of the five-pointed bird design. Yet on the advice of Samoan commentators I set these apart as pictures of the octopus, and we need such explanation in support of the series of derivative forms in inlay which are wide of the bird suggestion. The octopus is a sac, a webbed disk, and tentacles. Now, if one holds an octopus by the sac and lowers it in the air to a plane surface, as it has been shown to me on dry beach-sand, the tentacles retract beneath the webbed disk and the horizontal profile tends to approximate a more or less regular eight-pointed star. If now the sac is lowered and the support of the hand removed, it tends to flatten out, because the consistency of the flesh is not sufficient to support all of its own weight when out of its element;

thus the sac must obliterate the view of certain of the points of the web and will give in horizontal profile some such figure as this under examination. I attach particular importance to the identification because it is so commonly accepted by the islanders in their own art that I have more than once discovered a particular respect for the American ensign over those of other nations because of the preponderance of the field of stars, for the octopus is one of the high gods of war. The figures 93 to 95 show this detail worked out in another method, and in 94 the socket as well as the inlaid ivory piece is included in the drawing. In figure 98 we find a realistic picture of the same animal; it is quite often seen propelling itself through the still and clear waters of the coral pools, and it is possible that the radiant lines about the sac, which is foremost in such jet-directed movement, may be the suggestion of motion through the water.

We come at last to the study of the engravings of mankind, a theme which more than all others has engaged the attention of these primitive artists, for we have half a hundred such drawings before us in the remainder of these illustrations. In the descriptive catalogue I have gone on the principle, which in many cases is susceptible of proof, that the men of the clubs are represented as looking outward from the carved surface. This establishes itself in the series of armed men, for it is a valid supposition that the club is carried in the right hand, and this is invariably to the left of the picture, except in figures 139 and 140, in which both hands are employed in wielding mighty weapons. Acting upon this assumption, right and left in these descriptions are directly opposite the right and left of the pictures.

In figure 130 it is seen how little it takes to depict a man; seven lines suffice—a pair of arms, a pair of legs, a head, two strokes for the body. This last item has peculiar importance in the reading of the designs, as will be made apparent when we reach that point in the list of distinct characters. It will be of advantage to present at the beginning the results of the collation of these figures upon the several units of design before we study particular pictures. The head is presented in six forms:

Semicircular with lower line straight: Nos. 98–104, 108, 111, 118, 122, 138.
Circular: Nos. 105–107, 109, 110, 112–114, 117, 119–121, 123–130, 135, 139–141, 144–146.
Quadrant with curve downward: Nos. 115, 142, 143.
Triangular with apex upward: Nos. 136, 142.
Oval with straight top: Nos. 131, 132, 134.
Oval with straight bottom: No. 133.
Arc overhead: Nos. 104, 106–117.

The semicircular head is evidently drawn in recognition of the ancient head-dress of the men as extending outward in a well-trimmed dome. The triangular head may be an attempt at the same design, but accomplished without the use of the curved line. We note, however, a con-

siderable difference in the treatment of the design in general, notably the absence of the side-pieces which so largely characterize the drawings with the semicircular head. The circular head is, of course, the merest convention and establishes no distinction based upon this form. The quadrant head is the work of a single artist in its three occurrences, and the same is the case with the four occurrences of the two oval heads; this variety, therefore, is to be ascribed to individual taste.

The arc above the head is problematic. The only things with which I am at all familiar in head-ornament in island life which occupy this position are three. One is the large turban of white bast cloth worn by Fijian warriors, one the decorative headpiece of the Samoans compacted of hair and ornament, one the impromptu employment of one side of the tip of the coconut-leaf slit down the stalk and tied around the head from the crown to the occiput in such way as to cause the leaflets to stand forth like rays. The Samoan headpiece is marked in the front by colored sticks, which also give the radiant effect. Any explanation based upon these matters can be made to apply only with the greatest difficulty to figures 110 and 112, in which the arc, or parts thereof, extends beyond the region of the head, and not at all to figures 114 and 115, in which it is held in the hands exactly as is a skipping-rope.

The neck is represented in four ways, as in this list, the long neck being peculiarly distinct, and where there is no neck at all we find two groups, in which the head is attached directly to the shoulders, and in which it is detached therefrom by a slight blank space.

Short: Nos. 98, 99, 108–111, 114, 115, 118–120, 123–125, 138, 139, 142, 143.
Long: Nos. 100–104, 136.
None, head attached: Nos. 105, 109, 110, 112, 113, 116, 117, 121, 126, 128, 141, 145, 146.
None, head detached: Nos. 106, 107, 122, 129–135, 140, 141, 144.
Side-pieces: Nos. 100–104, 122, 135, 137.

Here the interest rests particularly upon those additions to the neck which from their position I have listed as the side-pieces. They are represented as distinct from the column of the neck, but as persisting in the space between head and shoulders. They occur in all but one of the figures with long necks and but three times outside of that group; in all but one of the long-necked figures they are presented in pairs, probably paired in 122, but in 135 *a* and 137 they are represented by a band above the shoulders, short in one case, shoulder-wide in the other. It seems quite safe to interpret these marks as symbolic of the necklace of whale-teeth, the Samoan *ulalei*.

The next point of distinction is the line of the shoulders. In so many instances this tract is portrayed by a horizontal line that it has not seemed necessary to list that treatment, but only its variants:

V-shoulder: Nos. 100–104, 115, 132, 133.
Upward curve: No. 144.
None: No. 129.
Extra joint: Nos. 100, 112–114, 120–122, 126, 128, 129, 141, 145.

The sharply marked V-shoulder characterizes all the figures with the semicircular head and side-pieces at the neck, the work of one artist, who has carried this angularity so far in one piece as to represent the entire trunk by an X. In figure 115 the V-form is shallow and the tips of the shoulders are very carefully rounded; in figures 132 and 133 there is but the slightest deviation from the right line, and the same is true in the other sense in figure 144. That element which I have listed as the extra joint is interesting as showing the effort to preserve an observed detail. It is clear that some of these artists have been sedulous to portray the axilla. Deficient in method, they have arranged for the axilla and then have been obliged to extend the upper surface of the shoulder in order to make room above for this lower detail.

The expression of these portraits rests upon posture, for it will at once be seen that in not a single instance do we find any attempt to present the face or any of its features; accordingly, the arms are a most expressive character.

Hanging loose: Nos. 98, 128, 143.
Hanging extended: Nos. 111, 122.
Hanging curved: No. 129.
Rectangular at elbow: Nos. 106–110, 112, 113, 116, 118–121, 126, 127, 131, 146.
Acute at elbow: Nos. 99–105, 114, 115, 117, 123–125, 132–135, 137, 138, 142–144.
Flexed: No. 141.
Curved overhead: No. 130.
Triangle overhead: No. 142.
Rectangularly overhead: Nos. 136, 139, 140.

The hand is very scantily carved, for in this art of design very much is left to inference; but the following list presents the occurrences of this member:

Fisted: Nos. 105, 124, 133.
3-fingered: Nos. 131, 132, 134–136.
4-fingered: Nos. 131, 134–136.
5-fingered: No. 132.
Thumb: Nos. 98, 117, 132, 135, 138.

We have seen in the extremely anatomized figure 130 that two marks were required to represent the trunk. On the other hand, we seem to find dozens of human figures, even brandishing their heavy clubs, represented in the extremely unstable position of a squat, with what seem to be thighs horizontal and knees angled. It is plain in figure 141 that no man in that posture could accomplish anything with a two-handed club which must weigh all of a stone. Furthermore, we have seen in the study of the shoulders the presence in the drawing of an extra joint as an art necessity. These three propositions can readily be combined into harmonious anatomy. The island artist recognizes such a prominent feature in the pelvis and buttocks that he finds himself under the necessity of including it in his trace of the form; therefore he goes beyond nature in its representation. In other words, he

visualizes as distinct entities the trunk and the hips. This view accounts for the second mark in picturing the body in figure 130, and makes clear in the figures of which 139 has been selected as the type that the man is not in unstable equilibrium and that the horizontal members are not his thighs, but the attempt to give due prominence to the hips, exactly as in the frequent case of the axilla as entailing an extra joint. That this is the artist's opinion is confirmed by several drawings in which the legs are represented as disjointed from the trunk and in which the hips go with the legs. Accordingly, in this list of treatment of the trunk it is to be understood as applying to only so much of the body as lies between the axilla and the upper rim of the pelvis. It is so commonly represented by a triangle that it is not necessary to cite such cases.

Columnar: Nos. 117, 122, 128, 129, 130, 135, 140, 144, 145.
Circular: No. 129.

In general the hips are represented by a straight line not quite as long as that which stands for the shoulders, and from the ends of this line depend the legs. Variants from the general type are here listed:

Curved hips: Nos. 98, 111, 119, 122, 138, 144.
Hips absent: Nos. 109, 110, 112–116, 118, 120, 121, 125, 129, 131, 135, 143, 145.
Attached to legs: Nos. 129, 132, 137.
Detached: No. 130.

The legs are commonly represented as right lines at right angles with hip and shoulder lines. We note these variants:

Flexed at knee: Nos. 106, 109, 110, 114, 116, 118, 120, 121, 125.
Curved: Nos. 110, 111, 144.
Convergent: Nos. 99, 101–105, 108, 117, 127, 136, 139, 145.
Divergent: Nos. 112, 113, 119, 129, 130, 137, 142–144.
Wishbone type: Nos. 115, 123, 124, 126, 134, 135, 142.

In general the feet are represented as outward lines at right angles to the legs; in a few cases there is the suggestion of an instep, yet that may be due merely to clumsiness in carving, and for that reason no attempt has been made to tabulate these cases. In some cases the extremity of the legs engages with detail of the general ornament, and it has been impossible to determine the existence of feet; yet there are a few instances in which feet are clearly absent.

Upward: Nos. 99, 114, 125, 137.
Downward: Nos. 106, 109, 110, 113, 117, 121.
Forward: No. 120.
Lacking: Nos. 107, 127, 129, 133.
Clubbed: Nos. 110, 141.

There seems to be a slight attempt to indicate the genitalia in figures 108, 129, and 133. We observe that in Nuclear Polynesia these parts are omitted from design with great insistence, being in sharp contrast with the Polynesian communities of the later migra-

tion to the east and with the Melanesians to the west. In figure 133, which exhibits a considerable picture of dismemberment, it may well be that this represents a scene very familiar to the Fijians in preparing such meat for the oven and the appendage represents the escape of the entrails. But all these instances are obscure.

In the foregoing designs of the lower animals it has generally been quite a sufficient satisfaction of the artist's plan merely to picture an animal or some symbol which in his community is commonly accepted as standing for an animal. Yet in figure 73 we have discovered the attempt to go beyond this simple statement; we recognize the effort to tell at least a simple story about the flying-fish and its aerial enemy. The same holds true in the case of the designs of men. Many rest content with the simple presentation of something recognizable as the portrait of a gentleman, and we have noted how little it requires to produce a man—seven strokes in figure 130, an X with appendages in figure 102.

In the actualities of life man and the verb are never very far dissociated, *homo sum* or other, existence involves the need to be, to do, or to suffer, in Lindley Murray's arid summation of a career. Many of these pictures present a man and leave the rest to the imagination; that is, merely to be. Others are instinct with the need to do; man must live his active life as his spirit moves him, and we shall have no difficulty in discovering several pictures alert with industry of some sort. Yet others portray what man must suffer, wounds in some, death in others as penultimate in cannibal life, for there is something after death, and, if my interpretation be correct, we find in figure 133 man's destiny accomplished.

It is interesting in these studies of childish art to pick out the element of vivacity. In the bird group filling the sky in figure 81 we have four expressionless symbols for as many birds, but in the distance we see another coming up on joyful wing filled with the swiftness of flight. So in some of these trivial figures of men we can sense the spirit of motion, the activity of the man doing something. In our figures 114 and 125 there is similar activity; we shall not go far wrong if we interpret it as a moment of the dance. In figures 106, 109, 110, 113, 117, and 121 the pose indicated by the feet shows us the man stepping forth about his business, whatever that may be.

Through much of this very crude design struggles for some manner of expression, the episodic; it is not enough to be a man; one must do. In the composition of figure 136 we catch one of the needs of a race of hardy navigators. One may not whistle for a breeze, for the sifflation is tabu to men, since the gods whistle as they speak; but one may pray with uplifted hands, Lord, send us a fair wind. In figure 106 we see the bearer of burdens stepping off with his load, possibly a bunch of taro with their succulent stems, for that is a common sight in island

life, and figure 107 seems associable therewith. In figure 129 we may not hold meaningless the strong right hand and outstretched arm in contact with two figures otherwise unique; they associate with figure 133 in the matter of dismemberment and appendages; they may represent the gastronomic phase of some such double victory as is presented in figure 144. From the Fijian dictionary we collate the following brief vocabulary of this theme:

bokola	body of the slain regarded as food.
botoalai	the body baked whole.
cibi	dance of men when a body is brought home.
dele	dance of women on the same occasion.
derua	drumbeat at the feast.
dorota	trunk of such a body.
duarua	feet of such a body.
qalita	to run away with another's *bokola*.
saku vakanamara	a *bokola* with the skullcap knocked off.
saulaca	shinbone of a *bokola* rubbed down into a sail needle.
sosova	to assemble to see a body brought home.
taube vadra	neck of a *bokola* whose head has been knocked off.
vakaroi vua	to call for a beam on which to sling a *bokola*.
valekarusa	the trunk of a body, eaten first because it will not keep.
wate	dance of women to the shout a-lu-tu-ya-ē-ē!

Figure 137 depicts for us the man with his spear, a two-tined weapon such as is made more apparent in figure 111. In figure 142 we have a most interesting episode in any man's sporting career and certainly entitled to such permanence of record as has befallen this club, now so far away from the warrior whom it glorified. Armed with the long spear, he not only got his man, but a bird beyond; one may doubt the tale, but at any rate the warrior wished it believed and was probably willing against all comers to support its accuracy with the same spear. Yet the Fijian verb *cokaveituituitaka* denotes just such a double play. The design introduces us to the subject of perspective. It is clear that the transfixed man was not floating in the air when he got his wound; it is quite as clear that the brave warrior did not lie down to thrust his long weapon. It is manifest that the problem which confronted the artist was to portray the two-handed forward thrust of the spear. Regarding this as the important element, one which would be obscured by the trunk, he has had no hesitation in presenting the body as rotated through 90 degrees with the shoulder-line as an axis. I believe that we find the same principle of perspective operative in the triangular legs of two web-footed sea-birds noted earlier in this collection.

Men with clubs are commonly portrayed. In figures 141 and 143 we find them with a missile club in each hand. A common armament of the Fijian was to carry two missile clubs in one hand, a third stuck through his belt, and his heavy two-handed club in the free hand; this he laid on the ground while delivering the flight of his missiles, as he could do with safety, and then picked it up for the closer fighting.

Such a Fijian scene has been illustrated by Krämer (Samoa, II, 280, 338); the former throws light as well upon the semicircular head of these designs, the latter upon one of the possible sources of the arc overhead. Other men carrying a single club are pictured in figures 116 and 138, and with two-handed clubs in figures 139 to 141.

In figure 144 we have the pride of the victor who has vanquished two enemies and who wishes to hand it down for all time to come. On either side lie his foes; their heads are gone (Fiji: *taube vadra*); they are sprawled, dead all over, and the leg of one has been broken; their futile clubs lie beside them as so much timber and of none account. In the three figures 111, 145, and 146, we have men with spear and club in each hand; for this double arming the Fijians give us the word *wesi*, and this is particularly important in its bearing upon the position of all these figures, for in the definition it is distinctly recorded that the spear is in the right hand and the club in the left, which of course would have to be the position in any art of war.

We conclude this study of the decoration of the clubs with an analytical catalogue (table 54) of the various designs which have been illustrated and somewhat in detail discussed in the foregoing pages.

TABLE 54.

Fig. No.	Piece No.	Source.	Type.	Notes.
1	2256	Tonga...	Paddle....	Band-and-zigzag, double zigzag, lozenge.
2	2252	Fiji.....	Pandanus..	Double zigzag, lozenge.
3	2252	Fiji.....	Pandanus..	Band-and-zigzag, extended band-and-zigzag.
4	2270	Samoa..	Lapalapa..	Band-and-zigzag with triangles.
5	3185	Fiji.....	Billet.....	Zigzag derivative.
6	2258	Tonga ..	Paddle....	Selu, banded, double serration, panels compounded of vertical and horizontal, vertical and diagonal.
7	3182	Fiji.....	Pandanus..	Selu single, unbanded, in same direction, 4 of 3 teeth, 2 of 4, 1 of 3, rest of 4.
8	2265	Tonga...	Billet.....	Band-and-zigzag, rectangular compound panels.
9	3177	Tonga...	Billet.....	Band-and-zigzag, combination panel horizontal-vertical-horizontal-right diagonal-horizontal-vertical; note panels 2 and 6 composite of 4 band-and-zigzag and 5 units rectangular basketry.
10	2262	Tonga...	Paddle....	Band-and-zigzag lozenge, coconut-leaf type.
11	2265	Tonga...	Billet.....	Band-and-zigzag triangles of 4 units, basketry.
12	2260	Tonga...	Paddle....	Band-and-zigzag rectangular composite panels, lower right triangle right diagonal, upper triangle left diagonal, left triangle horizontal.
13	3144	Tonga...	Billet.....	Band-and-zigzag rhomboid composite panel, sides longitudinal, ends right diagonal, inner rhomboid divided by horizontal band-and-zigzag, upper area left diagonal, lower area longitudinal.
14	2491	Fiji.....	Billet.....	Coconut, imbricate, stalk not carved, blank quadrilaterals.
15	3176	Fiji.....	Staff.....	Coconut, stalk carved, 2 elements facing in lozenge panel; serration; herring-bone.
16	3172 *a*	(?)	Lapalapa..	Coconut, stalk not carved; blank triangles; lozenges from cross-cuts.
17	2260	Tonga...	Paddle....	Coconut, stalk not carved; as herring-bone.
18	3355	Tonga...	Paddle...	Coconut, stalk carved; alternate in each sense with square panels diagonally divided, upper right triangle horizontal lines, lower left diagonal lines.
19	2260	Tonga...	Paddle....	Coconut, stalk carved; longitudinally and horizontally alternate with square panel band-and-zigzag horizontal, diagonally with square panel band-and-zigzag longitudinal.

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
20	2260	Tonga..	Paddle....	Herring-bone, no stalk; triple; band-and-zigzag in three units showing band each edge.
21	3174	Tonga..	Paddle....	Herring-bone, no stalk; panel double, panel triple; composite panel, diagonal division, lower right triple, upper left double.
22	3355	Tonga..	Paddle....	Herring-bone, no stalk, triple; panel to right left diagonal lines; panel to left, serration, horizontal bar, zigzag.
23	2260	Tonga..	Paddle....	Herring-bone in panels, triple with stalk, triple no stalk, double with stalk.
24	3787	Fiji.....	Pandanus..	Herring-bone with stalk, multiple.
25	15744	Samoa..	Mushroom.	Lozenge, product of facing serrations.
26	3100 *a*	Fiji.....	Billet.....	Lozenge, product of facing serration, a line drawn in order to break up lozenge.
27	2495	Fiji.....	Lipped....	Lozenge, product of cross-cutting, see fig. 16; lozenge, product of excavation; dot in latter lozenge (compare 41).
28	15744	Samoa..	Horned....	Lozenge, product diffuse cross-cutting; exterior angles carved out.
29	15744	Samoa..	Horned....	Lozenge, product diffuse cross-cutting; exterior angles carved out; 2 inner concentric triangles carved out, leaving central septum.
30	15744	Samoa..	Horned....	Lozenge-derivative of 28, exterior angles carved out, left diagonals omitted, resulting in right diagonal rhomboid with notched ends.
31	3100 *b*	Fiji.....	Billet.....	Triangles grouped, incised, triple triangle, upper inverted apex, 2 lower apex upward; compare on 32 downward units.
32	15744	Samoa..	Horned....	Triangles grouped in compound triangles separated by diagonals, 2 types opposing; downward units, three triangles with apices in same direction; upward units, 1 apical triangle, 3 at base, all in same direction.
33	15744	Samoa..	Horned....	Serration; opposite units divided by plain bar.
34	15744	Samoa..	Horned....	Serration; opposite units divided by notched bar.
35	3356	Tonga...	Paddle....	Basketry, rectangular, no septa, broad bands represented by 6 parallel lines in each.
36	2256	Tonga...	Paddle....	Basketry, rectangular, septa one way, broad bands of parallel lines generally heavier parallel to septa, 1 unit thin lines and spaced square dots.
37	2256	Tonga...	Paddle....	Basketry, rectangular, septa one way, broad bands parallel lines, composite application.
38	3356	Tonga...	Paddle....	Basketry, no septa, broad bands parallel lines, longitudinal and right diagonal elements.
39	3356	Tonga...	Paddle....	Basketry, septa horizontal, broad bands of parallel lines compound, each unit upper right vertical, lower left left diagonal.
40	3355	Tonga ..	Paddle....	Same as 41, but septa vertical, in compound unit upper right lines of points arrayed horizontally.
41	3100 *a*	Fiji.....	Billet.....	Arc of longitudinal lines contained within upper and lower arcs band-and-zigzag; dots in some dentelles (compare 27).
42	3789	Samoa..	Mushroom.	Traingles, 2 units: in one plain triangles alternately opposed along line of bases; in the other alternating apex up and apex down plain and compound triangles, in the latter component triangles apically opposite the compound (compare 31 and 32).
43	2258	Tonga...	Paddle....	Circles, concentric, 3; blank line of diametric division suggests evolution from figure of 3 concentric angles on same unit.
44	2258	Tonga...	Paddle....	Circles, concentric, 2, and center spot.
45	2258	Tonga...	Paddle....	Circles, concentric, 2, and center spot; serration product of zigzag; lozenges.
46	2490	Fiji.....	Billet....	Circle about pit on end of haft: radiants of 3 cuts not reaching edge; in each sector double arcs; outer circle complete; circular depression with clumsy resumption of 2 radiants; thin rim of club.
47	3181	Fiji.....	Lipped....	Circle, 5 radii.
48	3181	Fiji.....	Lipped....	Circle, 4 radii; concentric circle of zigzag; outer concentric circle.
49	3181	Fiji.....	Lipped....	Circles, band-and-zigzag, concentric on end of haft; 4-rayed curvilinear figure with tips extending into outer circle.
50	3359	Tonga...	Paddle....	Upward arc, no chord; longitudinal rays of plain lines above; diagonal unit of heavy cross-lines below.
51	3356	Tonga...	Paddle....	Upward arc, chord; subtending graduated longitudinal lines which at right tend to become radiant (compare fig. 108).

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
52	3358	Tonga...	Paddle....	Downward arcs, 2, chords; subtending crescentic figure graduated lozenges.
53	3147	Tonga...	Paddle....	Downward arcs, 3, chords; subtending crescentic figure graduated lozenges.
54	2270	Samoa..	Lapalapa..	Loop and tie, graduated in each loop.
55	2270	Samoa..	Lapalapa..	Loop and tie, graduated in each loop.
56	3146	Tonga...	Paddle....	Loop and tie, loops not graduated, lines very fine and clear; alternating with line of connected lozenges.
57	3781	Fiji.....	Staff.....	Cordage involution; Maori erratic.
58	3147 *a*	Fiji.....	Billet.....	Vine and leaf; vine conventional band-and-zigzag; leaf suggests *fuesā*, the beach convolvulus (*Hoya* sp.); found also in figures 131, 132, 133, and 135, from same piece.
59	2258	Tonga...	Paddle....	Dog; in heraldic terms souriant regardant.
60	3147 *a*	Fiji.....	Billet.....	Turtle (compare fig. 105).
61	3147 *a*	Fiji.....	Billet.....	Turtle.
62	2270	Samoa..	Lapalapa..	Sting-ray.
63	2270	Samoa..	Lapalapa..	Shark; lateral aspect, 2 dorsals, 1 ventral fin, shovel mouth, heterocercal tail.
64	2268	Tonga...	Paddle....	Shark; dorsal aspect, 2 pectoral fins, heterocercal tail.
65	2268	Tonga...	Paddle....	Same as 64.
66	3145	Tonga...	Paddle....	Fish; one dorsal, 2 ventral fins, homocercal; elegantly suggestive of the bonito.
67	3145	Tonga...	Paddle....	Fish; 1 dorsal, 2 ventral fins, homocercal tail, ventrals carved forward (compare fig. 69), an invert of the same fish; chunky body.
68	3145	Tonga...	Paddle....	Fish; 1 dorsal, 1 ventral, homocercal tail; fins opposite, near tail; chunky body; different from 66 and 67.
69	3145	Tonga...	Paddle....	Fish; an inverted copy of 67.
70	2270	Samoa..	Lapalapa..	Fish and bird; fish, no fins, slim body, homocercal; bird, as 83 in front, as 85 at tail.
71	2270	Samoa..	Lapalapa..	Fish and bird, interrupted line; fish as 72 but heterocercal; bird as 70.
72	2270	Samoa..	Lapalapa..	Fish and bird, interrupted line; fish as 71; bird as 70.
73	2270	Samoa..	Lapalapa..	Fish and bird, interrupted line; two groups; one fish as 70, one as 71; birds as 70.
74	2257	Tonga...	Paddle....	Lizard.
75	3145	Tonga...	Paddle....	Bird; long bill, long tail, standing, straight legs.
76	2270	Samoa..	Lapalapa..	Bird; long bill, long tail, standing, straight legs; more poorly executed than 75.
77	3178 *a*	Samoa..	Lapalapa..	Bird; long bill, long tail, standing, legs as triangles; lozenges produced by cross-cutting.
78	3178 *a*	Samoa..	Lapalapa..	Bird, as 77; lozenges, as 77.
79	2258	Tonga...	Paddle....	Bird; long bill, long tail, standing, one leg triangular as in 77 and 78, the other weakly trailing as fractured, whether by design or poor carving.
80	2258	Tonga...	Paddle....	Bird; long bill, long tail, sitting; either brooding, but no suggestion of nest, or more likely resting upon the waters.
81	2261	Tonga...	Paddle....	Birds, 5 in flight; each represented by upward opening angles for wings, small projection in angle for head, broad downward triangle for tail; the tail of none of these birds suggests bifurcation: background, from left to right, serrations, irregularly cross-cut lozenges, right diagonal parallel lines, saw-teeth curved.
82	2261	Tonga...	Paddle....	Birds in flight; 2 groups of 2 each; as in 81: background, left, longitudinal and horizontal parallel lines, 2 serrations outwardly opposed, irregular saw-tooth figure; right, saw-tooth figure, saw-teeth, 1 serration, saw-teeth, saw-teeth curved.
83	3359	Tonga...	Paddle....	Bird in flight, fan tail; serration, longitudinal parallel lines, zigzag.
84	3359	Tonga...	Paddle....	Bird in flight; right diagonal parallel lines, zigzag.
85	3359	Tonga...	Paddle....	Bird in flight; longitudinal and horizontal light and heavy parallel lines.
86	2268	Tonga...	Paddle....	Bird in flight, head and tail with white transverse stripe; heavy parallel lines in 3 directions, 1 unit zigzag, horizontal.
87	2258	Tonga...	Paddle....	Bird in flight; left diagonal parallel lines, 1 unit horizontal zigzag.
88	2258	Tonga...	Paddle....	Bird in flight; poor serration and parallel lines.
89	3146	Tonga...	Paddle....	Bird in flight; horizontal serrations and zigzags.

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
90	3178 *a*	Samoa..	Lapalapa..	Bird in flight, long neck and sagittate head as in 104 *a*; herring-bone.
91	3172 *a*	(?)	Lapalapa..	Octopus; conventionalized; herring-bone, but in upper unit under perturbation from outer angle of figure.
92	3172 *a*	(?)	Lapalapa..	Octopus, as 91; addition of triangle in upper herring-bone.
93	3175	Tonga...	Rootstock.	Octopus; inlay, inner angles and base curved.
94	3175	Tonga..	Rootstock.	Octopus; inlay, less curved than 93.
95	3175	Tonga...	Rootstock.	Octopus, inlay, as 94.
96	2270	Samoa..	Lapalapa..	Octopus, as swimming, sac, disk, and 6 tentacles; left diagonal lines below, above divergent rays (compare 91 and 92 with upper convergent lines).
97	3175	Tonga...	Rootstock.	Triangle; inlay.
98	2256	Tonga...	Paddle....	Man; head semicircular, neck short, shoulders square, arms hanging, hands show thumb and one finger opposed, body triangular, hips rounded, legs straight, feet outward.
99	3174 *a*	Tonga...	Paddle...	Man; head semicircular, neck short, shoulders square, arms angled at elbow, left forearm swollen, ? billet in each hand, body triangular, hips angular, legs convergent, straight, feet outward, right upward.
100	3178 *a*	Samoa..	Lapalapa..	Man; head semicircular, neck long with side-pieces, V-shoulders, arms angled at elbow, no hands, body triangular, hips angular, legs parallel, straight, feet outward; right diagonal lozenges.
101	3178 *a*	Samoa..	Lapalapa..	Man; head semicircular, neck long with side-pieces, flat V-shoulders, arms angle at elbow, no hands, body triangular, hips angular, legs outwardly convergent, straight, feet outward; right diagonals, under feet 1 horizontal bar over 4 vertical lines.
102	3178 *a*	Samoa..	Lapalapa..	Man; head semicircular, neck long with side-pieces, V-shoulders, arms angled at elbow, no hands, X-body, hips angled, legs outwardly convergent, straight, feet outward; herring-bone, under feet horizontal bar unites with upmost herring-bone.
103	3178 *a*	Samoa..	Lapalapa..	Man; head semicircular, neck long with long and recurved side pieces, flat V-shoulders; arms angled at elbow, no hands, body triangular, hips angled, legs outwardly convergent, straight, feet outward; diagonal lozenge pattern.
104	3178 *a*	Samoa..	Lapalapa..	Man; head semicircular, neck long with right side-piece, flat V-shoulders, arms angled at elbow, no hands, body triangular, hips angled; legs outwardly convergent, straight, feet outward, left upward; radiant heavy lines, suggesting arc over head, under feet 2 right diagonal serrations.
104*a*	3178 *a*	Samoa..	Lapalapa..	Bird, as in figure 90; on herring-bone.
105	3145	Tonga...	Paddle....	Man within turtle; turtle (compare figures 60, 61). Man; head circular, no neck, shoulders square, arms angled at elbow, hands on turtle rim, body slimly triangular, no hips, thighs divergent, shins convergent, feet outward.
106	1975	Tonga...	Paddle....	Man; head circular, detached; no neck, shoulders square, arms angled at elbow, no hands, forearms excessively prolonged; trunk triangular, no hips, right leg flexed at knee, left leg straight, feet outward and downward; line of shoulders prolonged each way equal to height of man, suggesting *amo* carrying-pole, from each end depends rectangular body equal to trunk in height, forearms nearly touch these bodies, interspace filled with left diagonals; arc over head, under feet left diagonals.
107	2268	Tonga...	Paddle....	Man; head circular, detached; no neck, shoulders square, arms angled at elbow, no hands, forearms prolonged, the left to edge of panel, the right 1.25 times body-height to ornament; body triangular, hips angled, legs straight, no feet; horizontal zigzag, between left leg and forearms 4 vertical bars, left of ornament 7 bars; ornament block with 2 downward notches, immediately beneath is similar block with one notch extended leftward by plain line; overhead suggestion of half arc.
108	3146	Tonga...	Paddle....	Man and arc; head semicircular, neck short; shoulders square, knob on right; arms angled at elbow, no hands; trunk triangular, slight suggestion of genitalia; hips angled, legs straight, convergent, feet outward; arc semicircular with slightly recurved ends, begins at shoulder level, radiant lines free at each end.

TABLE 54—*continued*.

Fig. No.	Piece No.	Source.	Type.	Notes.
109	1975	Tonga...	Paddle....	Man and arc; head circular, no neck; shoulders square, arms angled at elbow, no hands; trunk triangular; no hips, right leg flexed at knee, foot outward, left leg curved, foot downward and outward, walking pose; arc heavy line over head shoulder width, no rays; triangle at left shoulder apex down, triangle at right elbow, hypotenuse away from body.
110	1975	Tonga...	Paddle....	Man and arc; head circular, no neck; shoulders very square, extra joint; arms angled at elbow, both upper arms enlarged above elbow, no hands; body triangular; no hips; right leg flexed at knee, foot outward, left leg curved, rearward, foot downward and outward, ? clubbed; arc poorly executed semicircle in plain line, more than shoulder-width, extending down as far as middle of upper arms.
111	2270	Samoa..	Lapalapa..	Man and arc; head semicircular, neck medium; shoulders square, arms straight at 45° angles, no hands; trunk mathematically triangular; hips slightly swelling, legs gently curved, feet outward; arc plain semicircle, shoulder width, attached right shoulder, free left, no rays: weapons, in right hand 2-tined spear, in left club of carinated type head upward.
112	3359	Tonga...	Paddle....	Man and arc; head circular, no neck; shoulders square, extra joint; arms angled at elbow, no hands; trunk slimly triangular; legs straight, sharply divergent, feet outward, prolonged; arc begins above level of crown at left shoulder, extends in curve of under side to a point at midhead level and quite beyond extent of right arm, thence in a right line downward to level of right forearm, arc overhead crescentic by 2 intersecting upper arcs forming a point; in space between right arm and right line of arc, design an ornament of three exterior teeth on an upright, at upper end angle extending over right shoulder; under aspect right forearm figure of S capsized.
113	1975	Tonga...	Paddle....	Man and arc; head circular, no neck; shoulders slightly rounded, extra joint; arms angled at elbow, no hands; trunk slimly triangular, no hips; legs straight, divergent, right foot downward and outward, left outward; arc 2 straight lines disjunct; in angle of right elbow a small vertical body, in angle of left a right angle.
114	3145	Tonga...	Paddle....	Man and arc; head circular, neck short; shoulders square, extra joint left; arms acute at elbow, biceps prominent in right; trunk slimly triangular; no hips; right leg slightly flexed at knee, foot outward; left leg acutely flexed at knee, shin inward, foot, detached, upward and outward; pose suggests dancing; arc, line continuous over head from hand to hand, very suggestive of dancing with skipping-rope
115	2270	Samoa..	Lapalapa..	Man and arc; head quadrant with arc down, neck medium; shoulders arched; arms at 45° angle, sharp elbow angle, forearms not separable from arc, with which they engage; trunk very slim triangle; no hips; legs of wish-bone type, feet outward; arc as in 116, but with exterior addition at summit of curve of a pentagonal lump.
116	3359	Tonga...	Paddle....	Man and arc; head circular, no neck, shoulders square, extra joint; arms angled at elbow, no hands; trunk triangular, no hips; right leg straight, left flexed at knee, feet outward in curve, greatly prolonged; arc represented by curve extending outside right shoulder, connected to crown by a slight upright; upright near end right forearm large mushroom or crescent club.
117	3145	Tonga...	Paddle....	Man and arc; head circular, no neck; shoulders in perspective; arms acute at elbow, no hands; trunks slimly triangular, hipped; legs straight, converging, right foot outward, left downward and outward; half of arc resembles plume slanting upward to right, disconnected from head.
117*a*	3145	Tonga...	Paddle....	Man; head circular, no neck; shoulders square; arms acute at elbow, hands represented by thumb and finger, the left particularly graphic; trunk columnar, hipped; legs straight, parallel, feet outward.
118	2261	Tonga...	Paddle....	Man and arc; head semicircular, neck medium; shoulders square, arms angled at elbow, no hands; trunk triangular, no hips; right leg flexed at knee, left leg curved outline straight, feet outward; arc represented by irregular figure with angle adjusted over the head.

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
119	3359	Tonga...	Paddle....	Man; head circular, neck short; shoulders square, extra angle; arms angular at elbow, forearms slightly downward, no hands; trunk slightly triangular, swelling hips; legs straight, slightly divergent, feet outward.
120	3359	Tonga...	Paddle....	Man; head circular, necked; shoulders slightly angled, extra joint right; arms angled at elbow, right forearm slightly downward, no hands; trunk somewhat triangular, no hips; right leg lightly flexed at knee, foot forward, left leg with knob at exterior knee, foot uncertain; in angle left arm right angle parallel to arm, perhaps similar design in corresponding right arm.
121	1975	Tonga...	Paddle....	Man; head circular, no neck; shoulders square, extra joint left; arms angled at elbow, no hands; trunk triangular, no hips; right leg straight, foot outward, left leg flexed at knee, shin inclined inward, foot downward and outward; walking pose.
122	3174	Tonga...	Paddle....	Man; head semicircular, detached, no neck; shoulders very broad, extra joints; arms straight, 45° angle, reaching almost to level of feet; trunk, a mere line; hips swelling; legs straight, feet outward, instep carved; a very artificial picture; right diagonals exterior to figure, left diagonals interior; at head, not at neck, side-pieces.
123	2270	Samoa...	Lapalapa..	Man; head circular, necked; shoulders square; arms acutely angled at elbow, no hands; trunk triangular; legs wishbone, feet outward; general ornament herring-bone on area, but blank space about head has radiant effect.
124	2270	Samoa..	Lapalapa..	Man; head circular, necked; shoulders square; arms acutely angled at elbow, right hand fisted; trunk incurving triangular; legs wishbone, feet with instep, left foot greatly prolonged.
125	2270	Samoa..	Lapalapa..	Man; head circular, necked; shoulders narrow; arms acutely angled at elbow, no hands; trunk slim triangle, no hips; right leg flexed at hip and knee, raised as high as knee level, foot outward and upward; left leg slightly bent, foot outward; the picture of climbing or a moment in the dance.
126	1975	Tonga...	Paddle....	Man; head circular, no neck; shoulders not in line, square, extra joint; arms angled at elbow, upper arms modeled, no hands; trunk triangular, no hips; legs wishbone, feet outward, instep on right.
127	2268	Tonga...	Paddle....	Man; rounded outlines; head circular, necked; shoulders square; arms angled at elbow, right forearm slightly downward, left upward; trunk columnar, hipped; legs converging, no feet.
128	3145	Tonga...	Paddle....	Man; rounded outlines; head circular, no neck; shoulders narrow, extra joints; arms represented by dependent body with curve at end; trunk columnar, excessively hipped; right leg straight on inner aspect, modeled exteriorly, left leg inward curve, feet outward.
128*a*	3145	Tonga...	Paddle....	Man: differs from 128 only in pointed tips of arms.
129	2268	Tonga...	Paddle....	Three men: Left: head circular, detached, no neck; no shoulders, but 2 distinct concentric arms follow curves of trunk, no hands; trunk detached, circular, no hips; legs straight, right detached, divergent, no feet; between the legs an irregular body reaching to the ground, possibly exaggeration of genitalia. Center: head circular, detached, no neck; shoulder involved obscurely in concentric arms as in former, no hands; trunk attached circular; hips, right clearly indicated, detached from trunk; legs attached, straight, divergent, no feet; at ground-level between the legs a suggestion of the similarly situated unit in the former. Left: head circular, no neck; shoulders engage with extra units; arms angular at elbows, forearms prolonged, right approximates central figure; trunk columnar, hipped; legs straight, parallel, no feet.
130	2261	Tonga...	Paddle....	Man, approaching his irreducible minimum: 7 pieces, all detached; head circular, no neck; arms curved, uplifted; trunk; detached hip, as in center figure 129; legs divergent.

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
131	3147 *a*	Fiji.....	Billet.....	Man; head, slightly cocked to right, circular figure flattened atop with rim figure on cheeks and chin, all detached; shoulders, rising to right, broad; arms angled at elbow, right hand 3 fingers, left hand 4; trunk triangular, no hips; legs straight, parallel, modeled exteriorly to represent thighs, feet outward; leaf from spiral vine engages with head.
132	3147 *a*	Fiji.....	Billet.....	Man; as in 131, except head and attachment erect, shoulders slightly scooped, angle at elbows acute, right hand thumb and 3 fingers, left hand 4 fingers and 1 detached; trunk broad columnar; ornament near left hand is inverted but same type as in 137 and probably 2-tined spear; leaf with added tip.
133	3147 *a*	Fiji.....	Billet.....	Man; head circular at crown, flat under chin, detached, no neck; shoulders slightly scooped; arms acutely angled at elbow, left detached, right hand knobbed, left smaller knob; trunk triangular to a point from which issues unit of 5 curved angles ending in a sagittate ornament, the whole suggesting a very free treatment of genitalia; legs detached, left hip well marked on leg, both legs bowed, no feet; margined leaf.
134	3147 *a*	Fiji.....	Billet.....	Man; head, flat crown, circular on cheeks and chin, double concentric lines along the curved regions, detached; shoulders square; arms acute-angled at elbow, right hand 4 fingers, left hand 3; trunk triangular; legs wishbone, feet outward.
135	3147 *a*	Fiji.....	Billet.....	Man; head circular, surrounded three lower sides by rectangular attachment disjoined under chin, inclined to left, detached; shoulders narrow; arms detached, acute angle at elbow, right hand 3 fingers, left hand 4; trunk columnar, no hips; legs slightly bowed, feet outward.
135*a*	3147 *a*	Fiji.....	Billet.....	Man; head circular, no attachments, detached; bar in place of side-pieces seen in 100–104; detached; shoulders broad; right arm detached, acutely angled at elbow, thumb and finger approximated, index engaging with fingers of left hand of associated figure; left arm straight along side, 4 fingers; trunk very slightly triangular, no hips; legs parallel, slightly curved, downward to left, both feet flat to left, left buttock noted; position seems sedentary, but not coordinate with customary Fijian sedentary posture; leaf.
136	3358	Tonga...	Paddle....	Men and bird; 4 men, heads triangular, necks long, shoulders narrow, arms extended horizontally, forearms vertically upward, fingers 3 on each hand except inner hand of inner and outer hand of outer figure in right hand group with 4; trunks triangular, hipped, legs straight, convergent, feet outward, excessively prolonged; bird as in 83 and 84, but tail reduced. Note from Hazlewood's Fijian Dictionary s. v. *tama:* "If a tropic bird flies over them when sailing they utter some such prayer as follows, 'Mo kila, saka, mada ga me cagi vinaka. Regard us, good lord, vouchsafe us a fair wind.' The posture is that of the act of prayer."
137	3147 *a*	Fiji.....	Billet.....	Man armed; head circular, lacks appendages of others in this series, detached, side-pieces represented by a single central detached bar; shoulders narrow; arms detached, acutely angled at elbow, no hands; trunk triangular and long, ending in a small knob; hips obscure but perhaps present in small lower triangle attached to knob; legs short, divergent; right foot outward, left outward and upward; right hand holds upright 2-tined spear (compare 132).
138	2258	Tonga...	Paddle....	Man armed; head semicircular, necked; shoulders broad; arms acutely angled at elbow, hands, thumb and finger on right, thumb and 2 fingers on left; trunk triangular, swelling hips; legs straight, feet outward; in right hand a club with lozenge head.
139	3145	Tonga...	Paddle....	Man armed; head circular, necked; shoulders in one with upper arms; arms modeled and extended horizontally, forearms upward at right angles; trunk columnar, widely hipped; legs straight, convergent, feet outward; over head extended to left of man 2-handed club, probably axe-bit type.

TABLE 54—*continued.*

Fig. No.	Piece No.	Source.	Type.	Notes.
140	2261	Tonga...	Paddle....	Man armed; 2 similar men; heads circular, detached, no necks; shoulders in one with forearms; arms extended horizontally, forearms upward at right angles, no hands; trunks triangular, widely hipped; legs straight, convergent, feet outward; in one figure leg broken and out of place; over heads 2 clubs extended slightly upward to left of figures, leaf-blade and transverse rib identify these as carinated.
141	2268	Tonga...	Paddle....	Man armed; head circular, no neck; shoulders broad; extra unit; arms downward and then upward, curved elbows; trunk columnar, constricted at waist expanding sharply to curved hips; legs straight, feet obscure; over head a poorly carved large club with head to right of figure, right hand holding, left free, suggestive of the larger serrated clubs.
141*a*	2268	Tonga...	Paddle....	Man armed; head circular, detached, no neck, shoulders broad; arms angled at elbow, no hands; trunk triangular, wide-hipped; legs straight, feet in a picture of double *talipes varus;* large disk in right hand, smaller disk in left, probably *ula* (compare 143).
142	2270	Samoa..	Lapalapa..	Man armed; apparently a man spears a man and a bird at one thrust. Man with spear: head triangular, necked; shoulders broad; arms straight over head to form triangle, no hands; trunk triangular, lightly hipped, legs straight, divergent, feet outward. Man speared: head quadrant (compare 117), necked; shoulders broad; arms acutely angled at elbow, no hands; trunk triangular; legs wishbone, feet outward. Bird (compare 83, 84).
143	2270	Samoa..	Lapalapa..	Man armed; head quadrant, necked; shoulders broad; right arm acutely angled at elbow, left extended 45° straight, no hands; trunk triangular, no hips; legs straight, divergent, feet outward; large disk in right hand, smaller in left (compare 141 *a*), probably *ula*.
144	2259	Tonga...	Paddle....	Man armed; scene of double victory: Center man: head circular, detached, no neck; shoulders curved; arms widely extended, acutely angled at elbow; trunk columnar, slight swelling at hips; legs slightly curved, divergent, the left advanced, feet outward and prolonged; in right hand a billet. Dead men: no heads at all, necks slightly scooped; arms spread abroad loosely; legs the same, one leg broken; under right arm of each lies a billet dropped from the hand.
145	3145	Tonga...	Paddle....	Man armed; head circular, no neck; shoulders broad, extra joint at right; arms angular at elbow; trunk columnar, wide-hipped; legs straight, convergent, feet outward; doubtful club in each hand.
146	1975	Tonga...	Paddle....	Man armed; head circular, no neck; shoulders broad; arms angled at elbow; trunk triangular, no hips; legs straight, left advanced, feet outward, spear in right hand, club in left, possibly lipped type.

MASKOID WITH PAPUAN ORNAMENTS, FROM NEW IRELAND.

M. L. BAKER PINX.

J. BIEN LITH. N.Y.

CHAPTER VI.

MIGRATION DRIFT AND ERRATICS.

In the succession of several volumes I have been able to prosecute somewhat minutely the examination and discussion of the linguistic evidence pertaining to the movement of Proto-Polynesian migration through the western Pacific from the earlier site of the race in Indonesia in the direction of its point of later distribution in Nuclear Polynesia. The physical material in this collection of the weapons of offense and of defense has afforded the machinery of a separate investigation of the same theme through other methods, quite distinct, and on that account all the more confirmatory. The result proves to be the same along either line of inquiry. In these wooden artifacts of Nuclear Polynesia, highly evolved in form to correspond with needs not only utilitarian but even vital in their necessity, most remarkably specialized in ornament, there are found with equal clarity the memorials of such transit and sojourn of the peoples of the Nuclear Polynesian race through and in various parts of Melanesia as has already been established through the study of the many languages of the two Pacific areas.

At particular points of the present inquiry proof has been adduced with growing strength of a distant source in Melanesia and in Melanesian culture for this or that form of the artifacts, for this or that manner of decoration. In all study of this wonderful folk-movement which took Proto-Polynesians in two discrete waves of migration out of their earliest known seats in the islands of Indonesia and set them in Nuclear Polynesia, thence to undergo later distribution, we lack positive records. Such must be the case with an unlettered people. The proof of the migration is all inferential; it subsists in the interpretation of obscure traditions, in the dissection of linguistic material, in the dissection of the anatomy of customs and social manners. We refer this movement to a period relatively remote; the various accounts when synchronized suggest a date generally equated to the beginning of the Christian era. After the first eastward impulse had expended itself with the settlement of the race in Nuclear Polynesia, we postulate an inter-migration period in which there was no communication between Melanesia and Polynesia. Later by some six centuries we find a new folk-movement of sundered branches of the same race moving outward from Indonesia with a culture somewhat markedly advanced, particularly in religious faith and social custom, pursuing some oceanic track not yet identifiable to a settlement of conquest upon the new abodes of its simpler kin. Quite uncertain as this second or Tongafiti migration track must remain in the present state of our knowledge of the race, there is ample reason to believe that it did not engage at any point with Melanesia and its culture. Following the Tongafiti arrival in

Nuclear Polynesia, we postulate a second inter-migration period with the same absence of communication with the island areas lying to the westward; this period endures until the beginning of the great voyages which have resulted in the establishment of Polynesian culture upon the islands of the South Sea eastward of Fiji and extending north to Hawaii, eastward to Easter Island, south to New Zealand and the Chatham Islands.

For these inter-migration periods we assume an absence of communication between Melanesians and Polynesians. In general this assumption is tenable. In each period the great eastward impulse had halted. The same is true of the third resting-period, that which followed the era of the great migrations, which endured for some 500 years, to the great upheaval produced by the arrival of adventurous Europeans upon voyages of discovery. Yet intercommunication was not wholly at a standstill in the resting-periods; greatly reduced it was undoubtedly, but not wholly absent. This is susceptible of establishment in the history of such Melanesian islands as Uea of the Loyalty group, of Aniwa and Fotuna in the New Hebrides, of certain of the atolls of the Polynesian Verge proximate to the Solomons. Likewise, in the modern period following European discovery the conditions attendant upon the introduction of the alien culture have led to a renewal of interchange of communication among the several races of the Pacific.

In this final chapter it is proposed to deal with the few but very interesting museum specimens which establish the quite modern drift of implements from the source of their origin to a point of discovery and collection where they are anomalous. By thus dealing in detail with matters which are readily established in the common acquaintance of modern and familiar customs, it is possible to illuminate matters which antedate the coming of European investigation. But before entering upon this specific theme it is proper to rehearse summarily what has been discovered in the club record as bearing upon the general problem of the migration.

That Melanesian Fijians of Nuclear Polynesia were at some remotely past time in contact with a specific culture with which the Moánus and other folk of the distant Admiralty Islands were at some indefinite time in contact is made apparent in the study of the axe-bit clubs with the device of a mortised socket for a blade. The condition is very succinctly set forth in the foregoing sentence. It is not intended to express the opinion that the Fijians and the Moánus are of the same race; there is a lack of anything which might serve as evidence upon which to base an opinion that the Melanesians of Fiji, in the course of migration to their present abode, had been commorant at any time upon the Admiralty Islands. But by removing the lashings of the Moánus obsidian spears there is disclosed the device of a doubly

mortised socket engaging with the blade and with the shaft; in the interpretation of the structure typed in the Fijian axe-bit we are led to the discovery of a similar doubly mortised socket engaging with blade and shaft. For this device we have no knowledge of any other habitat. Therefore we arrive at the conclusion that Moánus and Fijians have derived this interesting device from a common culture source. It is impossible to venture further and to suggest a Fijian or a Moánus source of the device, for the movements of migration which have affected the Melanesian races are yet to discover. In another work we have investigated the occurrence in Matankor of the Admiralty Islands of the custom of the kava (Sissano, 135), and this distant locus of a custom of such high development in Fiji is certainly of the utmost importance. At the same time we must note the linguistic record of the Moánus (The Polynesian Wanderings, 147) as exhibiting very strong traces of Polynesian speech. Speech and kava may establish Moánus as a halting-place of wandering Proto-Samoans; the axe-bit, restricted to the Melanesian culture element in Nuclear Polynesia, is evidential of distinctively Melanesian association.

The next critical character is the wooden metamorph of the stone head in such clubs as we have here assembled under the designations of *ula*, mace, pandanus, and lipped. With the single exception of the mace, all these pertain to the Fijian culture element, while the distinctively Polynesian types, such as the paddle and the *lapalapa*, are quite as clearly wooden weapons *ab initio*. In the case of the missile club, the mace, and the pandanus we have satisfactorily shown the evolution from a spherical or cylindrical head of stone, such as is found in New Britain and parts of northern Melanesia. In the case of the axe-bit and the lipped club we have established a source in the stone blade mounted as an axe, and this mounting can be identified in northern Melanesia and nowhere else in the Pacific. Therefore these characters point in the same direction as does the socket element. Ancestors of the Fijians must have been in contact with the culture which has given the peoples of the Bismarck Archipelago the stone blade or the shell blade mounted with its cutting-edge parallel with the shaft as distinct from the adze mount which characterizes southern Melanesia and all of Polynesia so far as records extend.

A critical character, singular in that it affects true Polynesians and not the Fijians of Nuclear Polynesia, is the sickle type of wooden club in Niuē, found in no other island of the province nor elsewhere in Polynesian culture. Here are found two important details in one weapon—the sickle blade and the cone ornament at the end of the handle. Each is identified in the Buka culture of the northern Solomon Islands. The former instances have established some remote community of culture for the Fijian and certain of the Melanesians; the latter is to be read as evidential that the Proto-Samoan ancestors of Niuē made such sojourn

in the region of Buka culture that they were led to adopt this distinctive type of weapon. We shall await with interest the collection of linguistic and cultural material from the northern Solomons for the light which it may show in confirmation of the interrelation of the two races.

We see a Melanesian source, and no other than Melanesian, for the general character of the ornament upon these clubs. When in Nuclear Polynesia a physical application appears upon the club-shaft it is invariably either a coil of sennit or a simple leaf tie. Yet the incised ornament, as distinguished from that which is applied, is predominantly characterized by the motive of weaving. This again we find to characterize Buka culture. A most interesting collection of arms from Buka and adjacent Bougainville exhibits not only the bows but the clubs and spears and even the fragile arrows completely covered with a fine plaiting in woven pattern of the fibers of grass and of Gleichenia fern.

All these details point in the direction of northern Melanesia as having left an impress, a dominant influence, upon the club art of Nuclear Polynesia, and this holds true both of the Melanesian element in Fiji and of the Proto-Samoan element in the other archipelagoes. The latter has received such abundant confirmation in the research addressed upon the linguistic problems as to justify the establishment of the Samoa Stream of migration-movement from an Indonesian exit by way of the north shore of New Guinea, thence through the Bismarck Archipelago and the Solomons to a port in Samoa, including Rotumā on the way.

This movement of migration is inferential though probable; it is set back into a somewhat remote past. The linguistic record establishes certain datum points along this track, but our comprehension of the wandering must rest essentially upon a knowledge of conditions of the wholly primitive life of these savage peoples, and particularly upon certain constants of the art of navigation within the power of sailors whose only craft are the canoes and whose motive power is the trade-wind. By the combination of speech and seafaring it is possible to establish the tracks of migration with considerable certainty. When the record of the artifacts is adjusted upon these already well-established tracks an added degree of certitude is obtained. The transmission of specific forms of the artifacts and of particular modes of decoration employed thereupon is properly to be designated drift, because it follows the identifiable courses of this great folk-migration. The drift is essentially part and parcel of the culture history of the Polynesians; the introduction of foreign elements is a mere detail in a smoothly flowing movement through channels quite well defined.

The erratics in the collections of South Sea artifacts are those objects which in quite modern times have been removed from their normal sources and have been deposited in alien communities from which they have been gathered by those interested in the collection of ethnica.

Here an outside influence is the cause of such redistribution of objects. They have moved anomalously in the Pacific area under conditions which are not normal to Polynesian life, which are wholly dissociated from the smooth movement of migration responsible for the drift. The exterior influence which has been at work in the scattering of the erratics is modern; it has been exerted only in the period since the discovery of the islands by the navigators of the white race and superior culture. The conditions of the drift were operative over many centuries; the conditions of the erratics arose and declined within less than a single century and have made almost as little impress of record upon written history as the drift conditions did upon the tradition record of savages. The principal trades which are to be studied in explanation of the erratics, even though fully pursued in the days of our fathers, have gone out as completely as did the aimless voyages of migrating canoes in the long ago.

FIG. 3
Little Bone God

The erratics in the collection under present review number 8 pieces; they are illustrated in Plates VII and VIII.

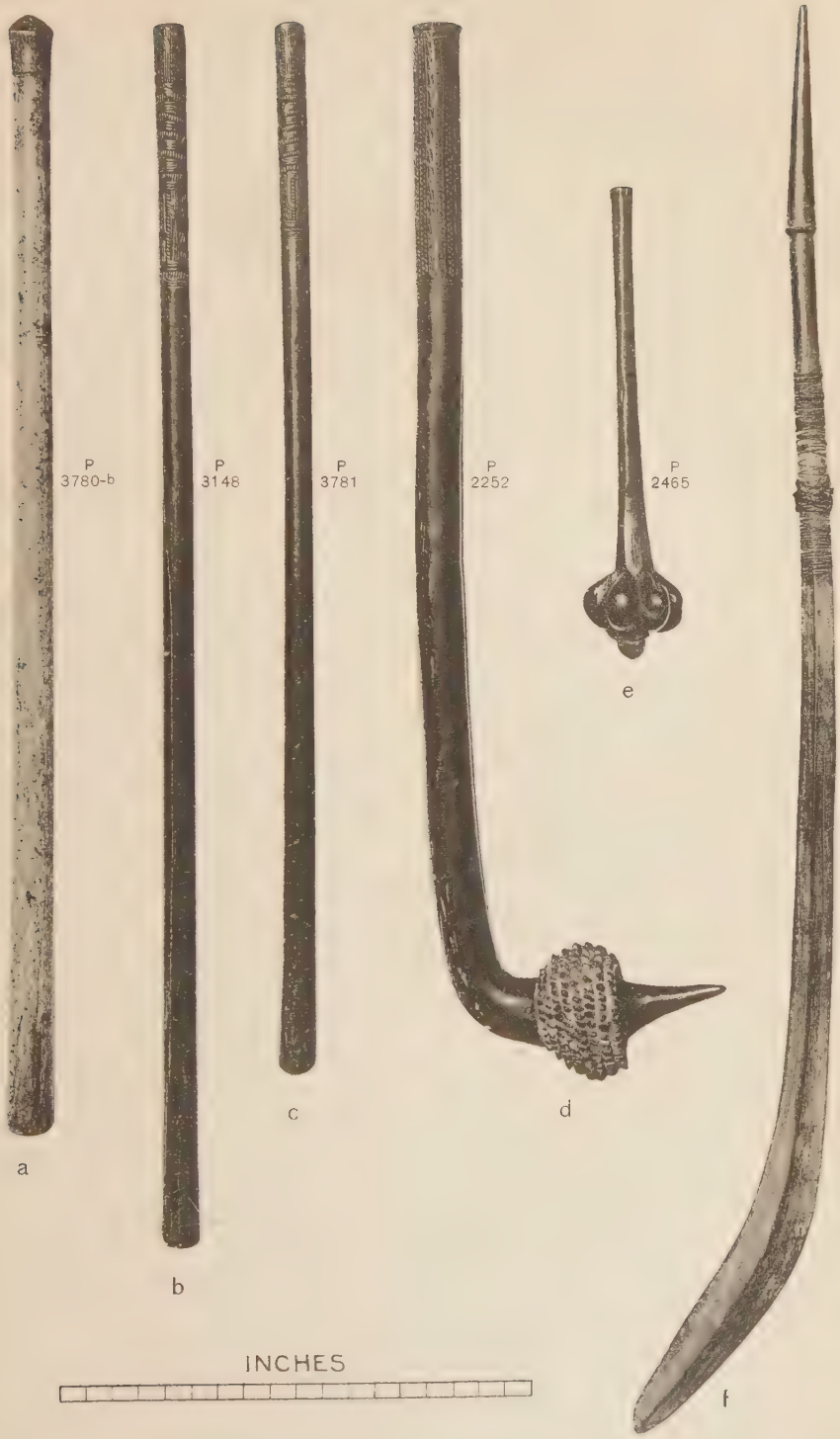
A figurine collected by Voy in the Solomon Islands without further particularization of locality is here pictured. It is recalled that Voy made but a single trip into the western Pacific, at that time a region of singular savagery and wholly devoid of the protection of law and order, save such as the adventurers could carry about their persons. In this trip he visited only the southern and better-known part of that great archipelago of the Solomons and probably went no higher than San Cristoval, which was then the usual port of call for the few vessels which adventured upon this wild trade. For the present purpose it is matter of small moment to seek to establish with more precision the particular island at which Voy made this find, for at whatever spot he did find it the object was equally misplaced. It is a piece of walrus ivory; the carving in its every detail is as much to be assigned to Alaskan culture as is the material.

With this is to be associated the object figured on Plate VIII, *a*, a club 4.5 feet long, picked up by Voy in Santa Cruz. This piece is carved throughout in the form characteristic of the light billet distinctive of Samoa; it is fitted with a triangular lug athwart the full width of the haft end, although the perforation has not been made, and this lug is properly assignable to Samoan club art. Yet this piece is carved entirely from narwhal ivory. Now, it is perfectly clear that the walrus does not frequent the warm waters of the southern Solo-

mons nor the narwhal the waters of Santa Cruz; the study of the distribution of mammals negatives that as even the most remote possibility; there is no natural supply in those regions of the material of these two pieces. Yet the credibility of Voy is so stoutly established that no doubt can attach to his record that he collected these two pieces at these points in the South Pacific and in warm equatorial waters, although the two animals can exist only in Arctic and subarctic seas.

The explanation of these two pieces discovered in alien surroundings begins far away, at Nantucket and New Bedford. It is written in the intimate history of the whale trade, once great but now decayed. Setting forth upon a three-year cruise, the whalers shipped only so much of a crew as might serve to sail the ship to the cruising-grounds. This inhered in the practice of paying by the lay; each sailor had an interest in the catch; it was the part of a good ship's husband to pare the crew-list to such good boat-headers and boat-steerers as might be needed in the great chase. In the earlier years of the last century the Pacific fairly swarmed with a fortune for the cast of the harpoon. In the war of 1812 Commodore Porter put the little *Essex* around the Horn and harried the British whalers. He took and commissioned so many prizes that the last had to be put in command of a midshipman scarcely entered into his teens, David Glasgow Farragut; he cruised with such a fleet that he was forced to annex the Marquesas to the United States in order to give himself a naval base. One of the most interesting of the oceanographic charts of Commodore Maury published by the Hydrographic Office before the Civil War was a guide to the whales of the great ocean—a double spout printed in blue upon each latitude and longitude where a whale had been seen to blow. It was a sport of all the year. In the summer the fleet went northabout after the right whale in Bering Sea and the Arctic; in the winter of the northern hemisphere it made a new summer off New Zealand after the antarctic whale. In each voyage between the ice of the north and the ice of the south the whalers scattered over the equatorial waters and followed the fiercely fighting cachalot. Small wonder that the giant mammals of the sea were brought so close to extinction that men were led to turn to Seneca oil to see if haply it might not do something more than serve as a liniment for creaky joints.

These random details of the whale fishery find their place in accounting for these two erratic pieces. Arriving shorthanded in the Pacific, the whalers filled up their forecastles with islanders from Samoa and Tonga and Fiji in the south, from Hawaii in the north—men of a race of boatmen, hardy and adventurous, eager to seek out new adventure. They were recruited to serve as boatmen; theirs was no lay in the catch; they felt themselves richly paid by a few bits of iron hoopage from the cooper's stores and by junk in general. The former of these emolu-



Erratic Club Forms.

ments, the few inches of soft iron, represented such wealth to a race ignorant of metals that its vernacular designation *takawai* has come to signify treasure of any sort. In this custom of the whale trade culture began to be mixed. Thus and from this cause Hawaiian material is met with on the Alaskan coasts and islands; even in the mountains of the western United States the name Owyhee still persists in its archaic spelling in varied geographical use. It is thus and from this cause that this northern material is found in Santa Cruz and the Solomons.

When familiar with the conditions of such seafaring there is no difficulty in reconstructing the story of each of these objects.

Some kanaka boatman on shore leave in Alaska was attracted by the little figurine. Possibly it appealed to his art sense; quite as likely, for the whale trade considerably antedated the introduction of Christianity, it may have seemed to him a god which it would be worth any man's while to have for his very own. One never wholly comprehends what actuates the savage mind, enormously strong for a time and then turning fickle. At any rate, such must have been the source of the carved ivory, and of such sort its portage away from the place of its origin. If a god, perchance he was in a journey; peradventure he slept; for Baal is not the only god in history who has proved recreant to his worshiper. Perhaps the attraction ashore in the southern Solomons was sufficient to induce the kanaka seaman to part with that which once he had treasured. There is dark and bloody ground in the western Pacific; there was in the beginning of our knowledge of Melanesia, there is to-day despite the emollient influences of high commissioners and gunboats and punitive expeditions. It may have been that the statuette so worked upon the cupidity of Solomon Islanders that they took it from the sailor, probably took the sailor himself the way of all flesh in those regions, which is the way of meat. It is thus that a simple explanation is found for the presence in the Solomons of a bit of Alaskan culture, an erratic.

So also is the story of the narwhal-ivory billet club, yet with a difference. In the former instance Alaska furnished both the material and the finished object; in this the material alone is Alaskan, the art is Polynesian. It was surely a Samoan sailor who first came into possession of this horn of the unicorn of the sea and saw at once how well fitted it was to the exercise of his handicraft. It is easy to picture him in the lazy hours of cruising with no more pressing occupation than waiting to be stirred into activity by the hail from the crow's nest of " 'Arr she blows and 'arr she breaches!" The hours of idleness go industriously past as he busies himself with holystone and shagreen to rub the twists out of the stalk of ivory, and with the sheathknife as he carves the lug upon its end in his own country fashion. He follows the art of the Samoan *tufuga* and fills his toilsome idleness with pleasant dreams of strutting along the Apia beach from Sogi and Savalalo,

stopping for a tale of the whale fishery at Matafele, for a hasty cast of a pebble at the tree shrine at Matautu, possibly for a bowl of kava at Vaiala, and so along to Mootā or even to Matafagatele of the glistening sands, proud in the possession of such a club as never before his return was carried in Samoa even by a chief. Yet before he could realize his dream, even before he had had the time to complete his club by making the hole through the lug whereby it might be suspended by a becket of sennit, the chance of his voyage led him to Santa Cruz. One does not associate the thought of gentle traffic with that savage island; no Samoan would ever give up peacefully such a club to men whom he could not trust with arms in their hands; there is blood upon the club beyond any doubt.

A pair of notably similar pieces represented on Plate VIII in figures *b* and *c* may be ascribed indifferently to one or other of two eminently peaceful trades, for they are clearly of Maori origin, both credited to Fiji and one upon the authority of Voy. One of these trades was the spread of the Gospel according to the tenets of that one of the Protestant sects which has most firmly established itself among the Fijians. In the division of the field of evangelization the Wesleyan communion claimed for its own possession the archipelagoes of Tonga and Fiji. The port from which these emollient expeditions set out was in the Australian colonies, generally Sydney or Melbourne. When none but sailing vessels were available for the service as mission tenders, the voyage was somewhat roundabout in order to take advantage of the prevailing winds, and New Zealand was found to be on the most direct route to the islands. There were Wesleyan missions to be served in New Zealand as well. In consequence of this fact of navigation, the mission tenders were commonly manned by Maori converts, who thus were brought into contact with the peoples of Nuclear Polynesia. A little later than the establishment of the Wesleyan missions, about the sixties of the nineteenth century, there was a somewhat brisk trade in tropical fruits between Auckland and Levuka, which remained until 1880 the principal port in Fiji, and many Maori were employed as sailors upon the light and speedy vessels which engaged therein. The mission service and the fruit trade provided the channel through which articles of Maori provenience might be collected in Fiji. The decoration on the grip of one of these pieces is shown in figure 59; that of the other is so much of the same general character that it did not appear necessary to take a rubbing.

The whale trade, destructive of the whales, was as innocent upon men as any contact of rude savages with rude sailors may be; the trade in bananas and oranges with New Zealand entailed no moral obliquity. But the last group of the erratics in this collection leads to the mute evidences of a trade which equaled, if indeed it did not surpass, all the iniquity and more than the shame of the Middle Latitudes and the

Roaring Forties, the "labor trade." Merely as museum specimens these objects are mute; they are present simply as culture objects found anomalously in sites in which ethnographically they are misplaced. It is only when it is sought to account for the anomaly that these specimens give their testimony of wrong deeds.

Continuing the examination of Plate VIII, figure *d* exhibits a pandanus club of the type distinctively Fijian. This was collected by Donaldson, a rare authority in this museum, in Ysobel of the central Solomons. It seems pity that with a name so glorious in the annals of triumphant womankind there should be linked this evidence of a thing shameful. That Ysobel thus commemorated in remote geography, Donna Ysobel Berreto, Admiral of Spain and the Indies by royal patent, was the wife, she became the widow, of Alvaro Mendaña de Neira. He had discovered an unknown land in the west of the great ocean and had filled his soul with the delusion that he had found once more the islands of Solomon son of David, those gold-studded shores from which ships of Tarshish fetched gold and ivory and apes and peacocks. His vision rested on no ivory nor a single ape nor yet a peacock, but he tricked himself into the belief that he had found the gold. For a generation a discredited dreamer of dreams, he haunted the court of the viceroy pleading ever in vain for a fleet in which to sail once again to claim for his Most Catholic Majesty the fabulous wealth of Tierra Australis. At last the viceroy Mendoza, Marques de Cañete and grandee of Spain, issued the grudging permit which allowed Mendaña to fit out the ships of his expedition and to sweep the jails from Valparaiso to Callao of the future settlers of the distant lands. With this runagate set the expedition fared forth, and with the admiral sailed his wife. The voyage halts for a space to discover those nearer islands which still bear the commemorative name of the Marquesas and many a holy saint, thence with many vicissitudes to the west. The gold they missed; others since their time have sought gold in the Solomons and have missed the prize. But in these islands Mendaña died and was buried, and to this day none has been able to discover his tomb. Dissension split the high command. Quiros, *piloto mayor*, assumed to succeed his leader and sailed stormily back to Peru with three of the ships. Donna Ysobel aboard the admiral held to her husband's purpose; she refused the homeward voyage, and explored the islands in the vain search for the mythical gold. At last, her victual all but exhausted, she tore herself away from the islands in which her husband lay buried, and made her way to Manila and back into the known world. In the end she discovered in the untried region of the westerly variables a new route for the returning galleons back to Acapulco, a priceless benefit to the commerce of Spain and of the world. Some time a careful search of the muniment chambers in Lima or Santiago in the New World, or in Seville in the Old World, may bring to light the records

upon which the historian may write the annals of this dauntless woman of the sea, the only woman who has earned the title of adelantada.

This club was found on Ysobel of the Solomons. In its weight, its size, and in its highly specialized form it is wholly alien to the far lighter weapon types of the Solomon culture. It is quite clear that it could not have been formed in the place of its discovery. It bears all the evidence of somewhat modern origin, for the marks of wear are slight. Its source may without a doubt be credited to Fiji. Yet between Fiji and the Solomons there can have been no communication for centuries until the arrival of the better navigation of white sailors. The canoecraft of the Solomons is so poor that it is inconceivable that voyagers from Ysobel could have cruised the unknown sea as far as Fiji and then won their way back with this article of war. Yet this club distinctly establishes a link between Fiji and the Solomons; not drift, but erratic.

In figure *e*, Plate VIII, is found yet another Fijian club, an *ula*. The manuscript label pasted upon it by some earlier possessor, in all likelihood the original collector, since he has been at pains to set upon it his initials and the date, shows that it was found in New Guinea somewhere, probably in one of the communities facing on Torres Straits. If it be really of Fijian provenience, which seems altogether likely, it is unique in that the shaft near the head is hexagonal in section, whereas all the true Fijian specimens examined are round. Yet as the plane surfaces of the shaft alternate with the flanges which compose the wheel-head, a characteristic Fijian treatment is recognized, for in the flanged-head type of rootstock clubs the same design is encountered. This erratic piece affords evidence of communication between Fiji and Torres Straits.

The last of these erratics lies outside the theme of this work in its more restricted content, for it is not a club. It is highly important in that it establishes yet another link of communication athwart regions where communication is not normal to the savage life. The erratic clubs exhibit the transference of material objects from one culture group to another. The last piece in its brilliancy of the colors of art and the more gorgeous hues of nature evidences the contamination of culture by the presence of the alien man. On this account it must stand as the most compelling proof of the nature of the principle which underlies this group of the erratics. In the case of the club erratics it is a matter of inference to argue the presence of the man who was the purposeful agent of the transport of the pieces from one culture group to the other. In this piece it is possible to sense the presence of the man in an alien culture site remodeling the piece to the canons of his own unforgotten art of decoration. It is not a club, yet it sheds so much light upon the transport of erratics that its inclusion here is highly germane to the theme.

This piece (Plate VII) is a very beautiful mask of the type usual in New Ireland adjacent to the shores of St. George's Channel, and it comes into the collection with the record that it was collected in New Ireland. The type is both highly developed and very narrowly restricted. Such masks are found only in the eastern region of the Bismarck Archipelago, on the shores of the channel which parts the two great islands; even when they are found in New Britain on the western shore of the channel the evidence is uniformly discoverable that New Ireland is the place of manufacture. The masks and maskoids of New Ireland are all carved of a soft and readily workable wood; they are all covered with such brilliant pigments as were originally or have more recently become available to the savage artist. Of such sort is this mask, but with a significant difference. Quite in the New Ireland style, the human head of this mask is surmounted by a carved bird, its long beak reaching down to the brow of the man face, its wings extending downward along the cheeks of the head below, its tail short and pertly cocked. While this mask was still in New Ireland, which it seems never to have left until it passed into the hands of the collector who sent it along to London to be disposed of by Oldman, it was subjected to an added treatment in decoration. Upon the wooden breast of the bird was set a bird skin with its feathers well preserved. Naturally this placing brought the feathered tail downward from the wooden breast in close parallelism with the carved beak. Upon the summit of the head of the wooden bird is pinned the dried head of a real bird, and this head faces toward the rear, as if continuing the positioning of the skin which had been applied upon the breast below. From the perked-up wooden tail depends a second tail of stuff rolled into a cord as great as the finger and more than 2 feet in length. It begins and it ends in a bunch of bird skins, and upon much of its length are applied the bright-hued skins of various Meliphagidæ, an Australasian order closely akin to the Trochilidæ, which embraces the scarcely more gemlike humming-birds of the American continents.

Feathers are but scantily employed in the decorative art of New Ireland; the employment of the whole bird-skin is wholly foreign to this culture group; neither observation nor the written record afford evidence that the men of New Ireland know how to skin a bird for the preservation of the beauty of the plumage. This decoration characterizes the art of New Guinea and is widely spread through all the communities of Torres Straits and of the northern coast of the island. This piece, then, carries its own evidence that it was made in New Ireland and that in New Ireland it was enriched by some exile from New Guinea.

These three erratics establish links between Fiji and Ysobel, between Fiji and New Guinea, between New Guinea and New Ireland. Now, between the points of these pairs there is in savage life no more chance of normal intercommunication than there is between Bering Sea and

the Solomons and Santa Cruz as established by the erratics of the whale fishery. For the latter communication it has been possible to establish a satisfactory and quite innocent explanation; far other in the case of these which have just been examined. The motive of these three erratics had its beginning half around the world in conditions which only the wildest feat of the imagination could associate with cannibal peoples of the western Pacific.

The long continuance of civil turmoil in this country a half century ago was felt around the world even to these islands of the uttermost sea. The presence of these erratics in regions where normally they should not be found is as much a consequence of the political theory of state sovereignty and the fugitive-slave law as were Gettysburg and Appomattox, for such is the balance of the world. When the blockade of the Southern ports was complete the cotton spinners of Great Britain were brought to penury; every warm region of the world which could be made to grow cotton was set to the task of supporting Manchester. Fiji was no exception, nor were the other islands of Nuclear Polynesia where soil could be found for such agriculture, but Fiji above all by reason of the extent of the diluvium in the deltas of its really great rivers, the Rewa and the Ba. In the Fijian social polity there was no plan for the wage-earner; each man did his little task for the support of the family commune; when that task was completed there was neither inducement nor compulsion to essay labor from which others were to reap the profit. Therefore, in Fiji arose the labor question, out of the question arose the labor trade, and when the colony of Queensland entered upon the cultivation of sugar the labor trade assumed enormous proportions. To preserve a face of respectability this system of enforced labor, technically indentured labor, was made moral by legislation which really did no more than give it the dignity of capital initials as the Labor Trade under acts of Parliament and of colonial legislatures and the sanction of an unimportant king or two. It was slavery none the less; it was a slave trade; and in the fifteen years between 1865 and 1880 it depopulated the western Pacific and destroyed the peoples of many islands.

There was toward the end of the period some salutary pretense of returning the indentured laborer eventually to his own. That was insisted upon by some manner of government supervision. There is a sense of satisfaction in the evidence of the pandanus club from Ysobel and the *ula* from New Guinea that two at least of the slaves reached their own homes and brought back with them new weapons which set their feet on a firmer hold on life.

But this commerce in humanity was carried out by men who recked not of sympathy for the kanaka; government could not obtain men of better nature at the meager wages of the labor agent. So long as each returning laborer was set ashore upon some island in order that the

official books might balance, there was none to voice an effective protest when the uncomprehended chattel was left upon some beach which might be hostile, which at its best was an alien land and the abode of utter strangers. This mask from New Ireland is as gay as the plumage of bright birds can make it; it flashes when the sunlight plays upon it. It is quite as wonderful a museum piece as one could imagine. It is as marvelous a contribution to the recognition of the art hunger of these primitive savages as it is possible to devise. But all this fades into insignificance alongside its appeal to our sympathies. It is the handiwork of a New Guinea man in New Ireland who through some miracle has escaped the oven which was the common end of such misplaced humanity in the dereliction of the labor trade. He had toiled through his years of servitude at harder labor than comported with his joy of living; he had been fed on foreign viands and not overfed; at last he was on his homeward way and in the end was set upon a distant island and his last hope of home perished on those rippled sands as the labor-trader's boat pulled off unheeding his uncomprehended protestations. How long he lived none may know; he has left but this record that in New Ireland among strangers he followed his bent and added to the ornament of carving that which really gladdened his life, the decoration of the feathers of the birds of the air, he more homeless than they.

At this point this study of the clubs of the central Pacific properly closes. The specimens have been grouped into types; the source of each type has been investigated. So far as has proved practicable the genesis of the several type forms has been worked out. The character of the ornament and its significance have been studied. In this concluding chapter the material evidence of the artifacts themselves has been assembled to the proof of the nature and direction of migration of Polynesians in the Pacific, both in the ancient period of the first migration and in the modern period of chance dispersion under conditions which have arisen in opposition to the smooth course of the life of the peoples of the Pacific.

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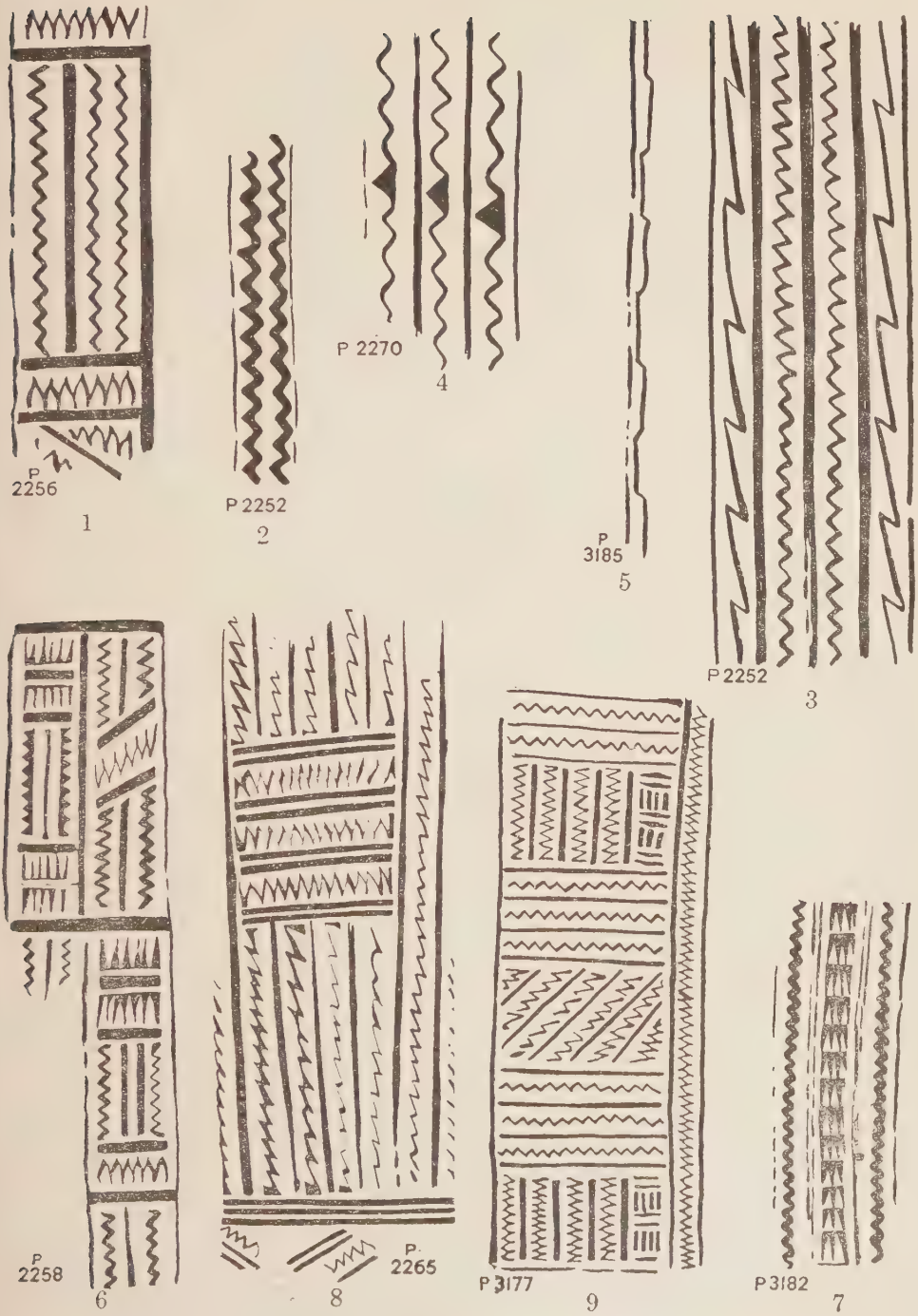
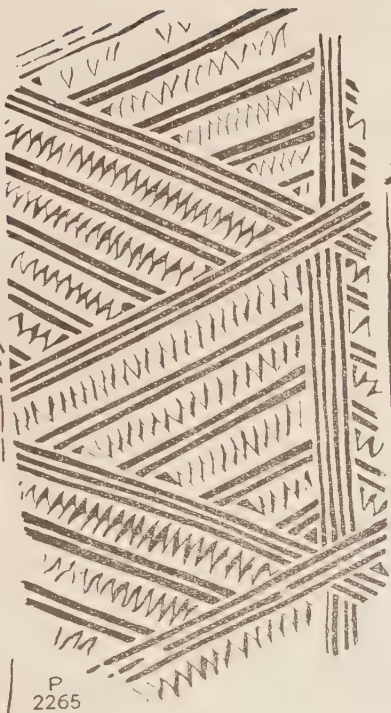


DESIGNS OF CLUB ORNAMENT. Figs. 1 to 9. Four-fifths size of specimens.

10



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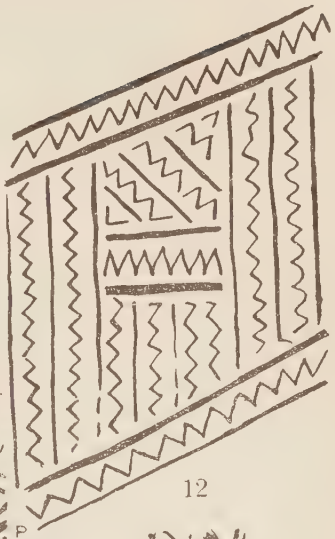

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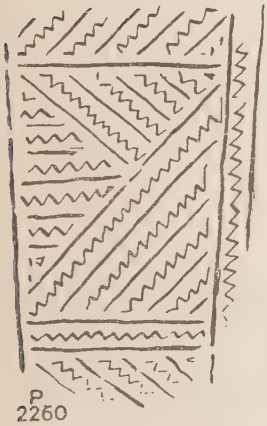

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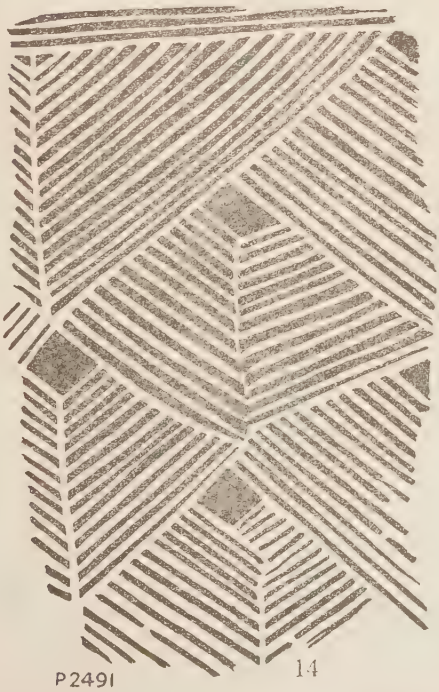

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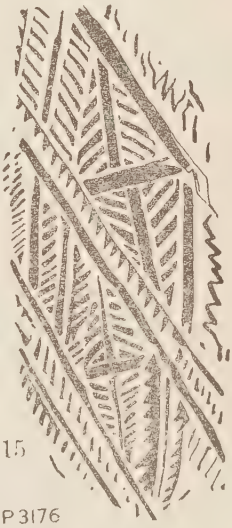

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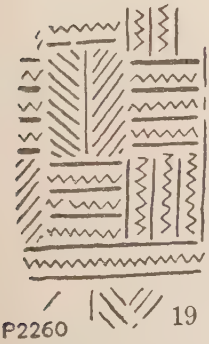

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DESIGNS OF CLUB ORNAMENT. Figs. 10 to 16, and 19. Four-fifths size of specimens.

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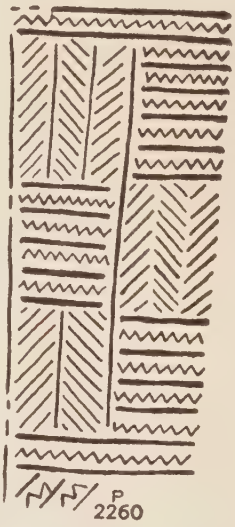

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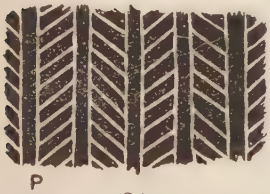

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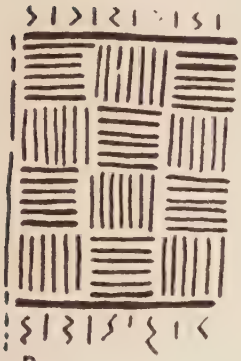
DESIGNS OF CLUB ORNAMENT. Figs. 17, 18, 20 to 34. Four-fifths size of specimens.



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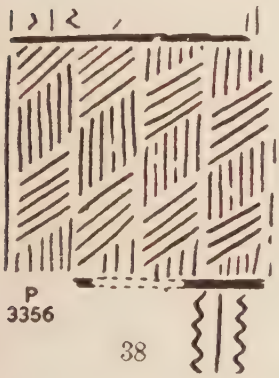

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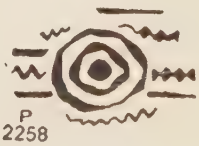

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DESIGNS OF CLUB ORNAMENT. Figs. 35 to 45. Four-fifths size of specimens.

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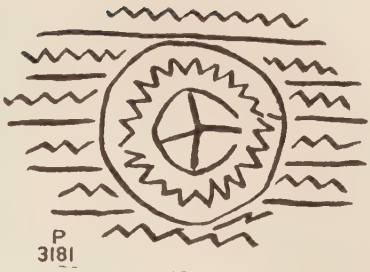

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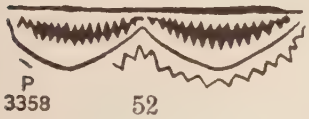

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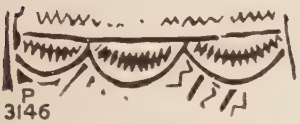

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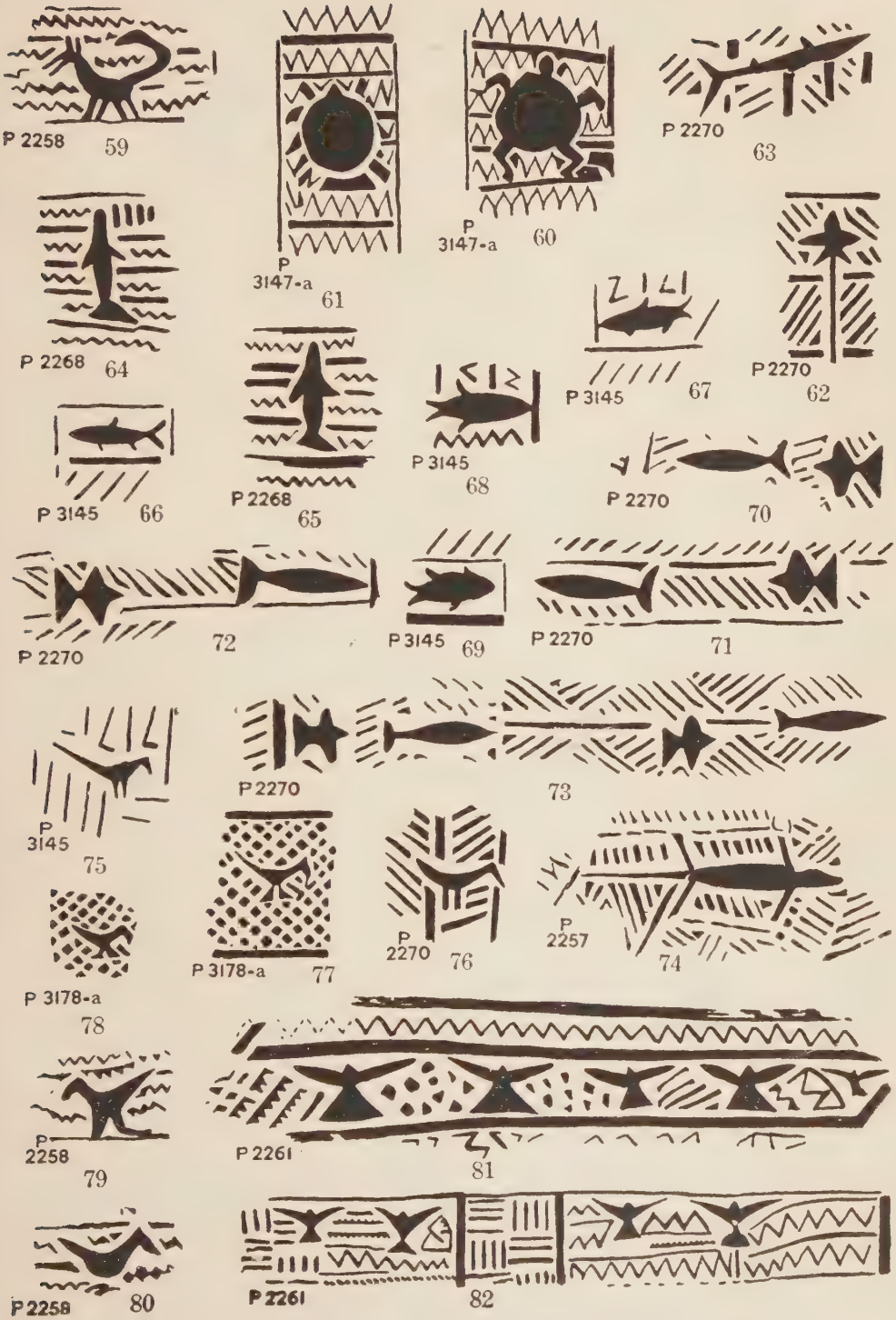
DESIGNS OF CLUB ORNAMENT. Figs. 46 to 58. Four-fifths size of specimens.



DESIGNS OF CLUB ORNAMENT. Figs. 59 to 82. Four-fifths size of specimens.

DESIGNS OF CLUB ORNAMENT. Figs. 83 to 110. Four-fifths size of specimens.

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DESIGNS OF CLUB ORNAMENT. Figs. 111 to 132. Four-fifths size of specimens.

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DESIGNS OF CLUB ORNAMENT. Figs. 133 to 146. Four-fifths size of specimens.

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